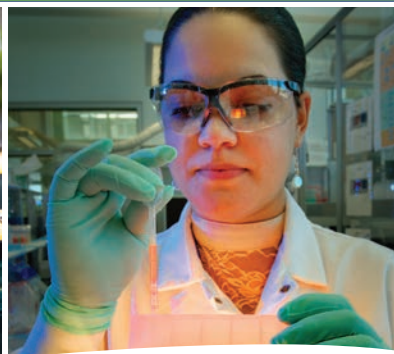




2018

Fourth National Report on Human Exposure to Environmental Chemicals *Updated Tables, March 2018, Volume One*



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

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- 19 Acrylamide
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- 20 Glycidamide
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- 21 Cotinine
CAS No. 486-56-6
- 24 Hydroxycotinine
- 25 NNAL
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- 37 Benzophenone-3
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- 73 2,4-Dichlorophenol
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CAS No. 583-78-8

Flame Retardant Metabolites

- 81 Bis(1-chloro-2-propyl) phosphate (BCPP)
- 83 Bis(2-chloroethyl) phosphate (BCEtP)
- 85 Bis(1,3-dichloro-2-propyl) phosphate (BDCPP)
- 87 Dibenzyl phosphate (DBzP)
- 89 Dibutyl phosphate (DBuP)
- 91 Di-*o*-cresylphosphate (DoCP)
- 93 Di-*p*-cresylphosphate (DpCP)
- 95 Diphenyl phosphate (DPhP)
- 97 2,3,4,5-Tetrabromobenzoic acid (TBBA)

Fungicides and Metabolites

- 99 *ortho*-Phenylphenol
CAS No. 90-43-7
- 101 Ethylene thiourea
CAS No. 96-45-7
- 103 Pentachlorophenol
CAS No. 87-86-5
- 105 Propylene thiourea
CAS No. 2122-19-2

Herbicides and Metabolites

- 107 Atrazine
CAS No. 1912-24-9
- 109 Atrazine mercapturate
CAS No. 138722-96-0
- 111 Desethyl atrazine
CAS No. 6190-65-4
- 113 Desisopropyl atrazine
CAS No. 1007-28-9
- 115 Desisopropyl atrazine mercapturate
CAS No. 1007-28-9
- 117 Diaminochlorotriazine
- 119 2,4-Dichlorophenoxyacetic acid
CAS No. 94-75-7
- 123 2,4,5-Trichlorophenoxyacetic acid
CAS No. 93-76-5

Sulfonyl Urea Herbicides

- 127 Bensulfuron-methyl
CAS No. 83055-99-6

- 129 Chlorsulfuron
CAS No. 64902-72-3
- 131 Ethametsulfuron-methyl
CAS No. 97780-06-8
- 133 Foramsulfuron
CAS No. 173159-57-4
- 135 Halosulfuron
CAS No. 135397-30-7
- 137 Mesosulfuron-methyl
CAS No. 208465-21-8
- 139 Metsulfuron-methyl
CAS No. 74223-64-6
- 141 Nicosulfuron
CAS No. 111991-09-4
- 143 Oxasulfuron
CAS No. 144651-06-9
- 145 Primisulfuron-methyl
CAS No. 86209-51-0
- 147 Prosulfuron
CAS No. 94125-34-5
- 149 Rimsulfuron
CAS No. 122931-48-0
- 151 Sulfometuron-methyl
CAS No. 74222-97-2
- 153 Sulfosulfuron
CAS No. 141776-32-1
- 155 Thifensulfuron-methyl
CAS No. 79277-27-3
- 157 Triasulfuron
CAS No. 82097-50-5
- 159 Triflusulfuron-methyl
CAS No. 126535-15-7

Insect Repellent and Metabolites

- 161 N,N-Diethyl-*meta*-toluamide (DEET)
CAS No. 134-62-3
- 165 3-(Diethylcarbamoyl) benzoic acid (DCBA)
CAS No. 858981-15-4
- 169 N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB)
CAS No. 72236-22-7

Carbamate Pesticide Metabolites

- 173 Carbofuranphenol
CAS No. 1563-38-8
- 175 2-Isopropoxyphenol
CAS No. 4812-20-8

Organochlorine Pesticide Metabolites

- 177 2,4,5-Trichlorophenol
CAS No. 95-95-4
- 179 2,4,6-Trichlorophenol
CAS No. 88-06-2

Organophosphorus Insecticides: Specific Metabolites

- 181 Acephate
CAS No. 30560-19-1
- 183 Dimethoate
CAS No. 60-51-5
- 185 Methamidophos
CAS No. 10265-92-6
- 187 Omethoate
CAS No. 1113-02-6
- 189 Malathion dicarboxylic acid
CAS No. 1190-28-9
- 191 2-Isopropyl-4-methyl-pyrimidinol
CAS No. 2814-20-2
- 193 *para*-Nitrophenol
CAS No. 100-02-7
- 195 3,5,6-Trichlor-2-pyridinol
CAS No. 6515-38-4

Organophosphorus Insecticides: Dialkyl Phosphate Metabolites

- 197 Diethylphosphate (DEP)
CAS No. 598-02-7
- 201 Dimethylphosphate (DMP)
CAS No. 813-78-5
- 205 Diethylthiophosphate (DETP)
CAS No. 5871-17-0
- 209 Dimethylthiophosphate (DMTP)
CAS No. 59401-04-6
- 213 Diethyldithiophosphate (DEDTP)
CAS No. 298-06-6
- 217 Dimethyldithiophosphate (DMDTP)
CAS No. 756-80-9

Pyrethroid Metabolites

- 221 *trans*-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid
CAS No. 55701-05-8
- 225 *cis*-3-(2,2-Dibromovinyl)-2,2dimethylcyclopropane carboxylic acid
- 227 4-Fluoro-3-phenoxybenzoic acid
CAS No. 77279-89-1
- 229 3-Phenoxybenzoic acid
CAS No. 3739-38-6

Metals and Metalloids

- 231 Antimony
CAS No. 7440-36-0
- 237 Arsenic, Total
CAS No. 7440-38-2
- 241 Inorganic-related Arsenic Species
- 245 Arsenic (V) acid
- 249 Arsenobetaine
CAS No. 64436-13-1
- 253 Arsenocholine
CAS No. 96055-45-7
- 257 Arsenous (III) acid
CAS No. 13464-58-9

- 261 Dimethylarsinic acid
CAS No. 917-76-0
- 265 Monomethylarsonic acid
CAS No. 65513-69-1
- 269 Trimethylarsine oxide
CAS No. 4964-14-1
- 273 Barium
CAS No. 81-25-4
- 279 Beryllium
CAS No. 7440-41-7
- 283 Cadmium
CAS No. 81271-94-5
- 292 Cesium
CAS No. 7440-46-2
- 298 Chromium
- 299 Cobalt
- 306 Copper
CAS No. 7440-50-8
- 307 Lead
CAS No. 7439-92-1
- 316 Manganese
CAS No. 8075-39-6
- 319 Mercury
CAS No. 92786-62-4
- 330 Molybdenum
CAS No. 7439-98-7
- 336 Platinum
CAS No. 7740-106-4
- 340 Selenium
CAS No. 7782-49-2
- 342 Strontium
CAS No. 7440-24-6
- 344 Thallium
CAS No. 7440-28-0
- 350 Tin
CAS No. 7440-31-5
- 352 Tungsten
CAS No. 7440-33-7
- 358 Uranium
CAS No. 7440-61-1
- 364 Zinc
CAS No. 7440-66-6

Perchlorate and Other Anions

- 365 Nitrate
CAS No. 84145-82-4
- 369 Perchlorate
CAS No. 14797-73-0
- 375 Thiocyanate
CAS No. 302-04-5

Perfluoroalkyl and Polyfluoroalkyl Substances: Surfactants

- 379 Perfluorobutane sulfonic acid (PFBS)
CAS No. 375-73-5

- 383 Perfluorodecanoic acid (PFDA)
CAS No. 335-76-2
- 387 Perfluorododecanoic acid (PFDoA)
CAS No. 307-55-1
- 391 Perfluoroheptanoic acid (PFHpA)
CAS No. 375-85-9
- 395 Perfluorohexane sulfonic acid (PFHxS)
CAS No. 355-46-4
- 399 Perfluorononanoic acid (PFNA)
CAS No. 375-95-1
- 403 Perfluorooctanoic acid (PFOA)
CAS No. 335-67-1
- 407 *n*-Perfluorooctanoic acid (*n*-PFOA)
- 409 Branched Perfluorooctanoic isomers (Sb-PFOA)
- 411 Perfluorooctane sulfonic acid (PFOS)
CAS No. 1763-23-1
- 415 *n*-Perfluorooctane sulfonic acid (*n*-PFOS)
- 417 Perfluoromethylheptane sulfonic acid isomers (Sm-PFOS)
- 419 Perfluorooctane sulfonamide (PFOSA or FOSA)
CAS No. 754-91-6
- 423 2-(*N*-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA)
CAS No. 2991-50-6
- 427 2-(*N*-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA)
CAS No. 2355-31-9
- 431 Perfluoroundecanoic acid (PFUnDA)
CAS No. 2058-94-8

Phthalate and Phthalate Alternative Metabolites

- 435 Mono-benzyl phthalate (MBzP)
CAS No. 2528-16-7
- 441 Mono-3-hydroxybutyl phthalate (MHBP)
- 443 Mono-*n*-butyl phthalate (MnBP)
CAS No. 131-70-4
- 449 Mono-isobutyl phthalate (MiBP)
CAS No. 30833-53-5
- 455 Mono-2-methyl-2-hydroxypropyl phthalate (MHiBP)
- 457 Mono-cyclohexyl phthalate (MCHP)
CAS No. 7517-36-4
- 461 Mono-ethyl phthalate (MEP)
CAS No. 863029-89-4
- 467 Mono-2-ethylhexyl phthalate (MEHP)
CAS No. 4376-20-9
- 473 Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)
CAS No. 40321-99-1
- 479 Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)
CAS No. 40321-98-0
- 485 Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)
CAS No. 40809-41-4
- 489 Mono-(carboxynonyl) phthalate (MCNP)
CAS No. 1373125-93-9
- 493 Mono-isononyl phthalate (MiNP)
CAS No. 297182-83-3

- 499 Mono-(carboxyoctyl) phthalate (MCOP)
CAS No. Di-isononyl phthalate (DNP)
- 503 Mono-methyl phthalate (MMP)
CAS No. 4376-18-5
- 509 Mono-(3-carboxypropyl) phthalate (MCP)P
CAS No. 66851-46-5
- 515 Mono-*n*-octyl phthalate (MOP)
CAS No. 5393-19-1
- 519 Cyclohexane-1,2-dicarboxylic acid mono(hydroxy-isononyl ester) (MHNCH)

Phytoestrogens and Metabolites

- 521 Daidzein
CAS No. 486-66-8
- 525 Enterodiol
CAS No. 80226-00-2
- 529 Enterolactone
CAS No. 77756-20-8
- 533 Equol
CAS No. 531-95-3
- 537 Genistein
CAS No. 446-72-0
- 541 O-Desmethylangolensin
CAS No. 21255-69-6

Polycyclic Aromatic Hydrocarbon Metabolites

- 545 2-Hydroxyfluorene
CAS No. 2443-58-5
- 551 3-Hydroxyfluorene
CAS No. 6344-67-8
- 557 9-Hydroxyfluorene
CAS No. 1689-64-1
- 563 1-Hydroxyphenanthrene
CAS No. 2433-56-9
- 569 2-Hydroxyphenanthrene
CAS No. 605-55-0
- 575 3-Hydroxyphenanthrene
CAS No. 605-87-8
- 581 2 + 3-Hydroxyphenanthrene
- 583 4-Hydroxyphenanthrene
CAS No. 7657-86-7
- 587 1-Hydroxypyrene
CAS No. 5315-79-7
- 593 1-Hydroxynaphthalene (1-Naphthol)
CAS No. 90-15-3
- 599 2-Hydroxynaphthalene (2-Naphthol)
CAS No. 135-19-3

Heterocyclic Amines

- 605 3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1)
- 607 2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C)
- 609 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (Ph1P)
- 611 2-Amino-9H-pyrido[2,3-b]indole (A- α -C)

- 613 2-Amino-3-methylimidazo[4,5-f]quinoline (IQ)
- 615 2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P1)
- 617 2-Aminodipyrido[1,2-a:3',2'-d]imidazole (GLU-P2)
- 619 Harman
- 621 1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2)
- 623 Norharman

Volatile Organic Compounds (VOCs)

- 625 1,1,1-Trichloroethane (Methyl chloroform)
CAS No. 71-55-6
- 627 1,1,1,2-Tetrachloroethane
CAS No. 79-34-5
- 629 1,1,2,2-Tetrachloroethane
CAS No. 79-34-5
- 631 1,1,2-Trichloroethane
CAS No. 79-00-5
- 633 1,2,3-Trichloropropane
CAS No. 96-18-4
- 635 1,1-Dichloroethane
CAS No. 75-34-3
- 637 1,1-Dichloroethene (Vinylidene chloride)
CAS No. 75-34-3
- 639 1,2-Dibromo-3-chloropropane (DBCP)
CAS No. 96-12-8
- 640 1,2-Dibromoethane
CAS No. 106-93-4
- 642 1,2-Dichlorobenzene (*o*-Dichlorobenzene)
CAS No. 95-50-1
- 644 1,2-Dichloroethane (Ethylene dichloride)
CAS No. 107-06-2
- 646 *cis*-1,2-Dichloroethene
CAS No. 156-59-2
- 648 *trans*-1,2-Dichloroethene
CAS No. 156-60-5
- 650 1,2-Dichloropropane
CAS No. 78-87-5
- 652 1,3-Dichlorobenzene (*m*-Dichlorobenzene)
CAS No. 95-50-1
- 654 1,4-Dichlorobenzene (Paradichlorobenzene)
CAS No. 106-46-7
- 656 1,4-Dioxane
- 658 2,5-Dimethylfuran
CAS No. 625-86-5
- 660 Benzene
CAS No. 71-43-2
- 662 Chlorobenzene (Monochlorobenzene)
CAS No. 108-90-7
- 664 Chloroethane
- 665 Cyclohexane
- 666 Dibromomethane
CAS No. 74-95-3

- 668 Dichloromethane (Methylene chloride)
CAS No. 75-09-2
- 670 Ethyl acetate
- 671 Diethylether
- 672 Ethylbenzene
CAS No. 100-41-4
- 674 Furan
CAS No. 110-00-9
- 676 Heptane
- 677 Hexachloroethane
CAS No. 67-72-1
- 679 Hexane
- 681 Isopropylbenzene (Cumene)
CAS No. 98-82-8
- 683 Methyl-*tert*-butyl ether (MTBE)
CAS No. 1634-04-4
- 685 Methylcyclopentane
- 686 Nitrobenzene
CAS No. 98-95-3
- 688 Nitromethane
CAS No. 75-52-5
- 689 Octane
- 690 Styrene
CAS No. 100-42-5
- 691 Tetrachloroethene (Perchloroethylene)
CAS No. 127-18-4
- 693 Tetrachloromethane (Carbon tetrachloride)
CAS No. 56-23-5
- 695 Tetrahydrofuran
- 696 Toluene
CAS No. 108-88-3
- 698 Trichloroethene (Trichloroethylene)
CAS No. 79-01-6
- 700 **ααα-Trifluorotoluene**
- 701 Vinyl bromide
- 702 *m*-/*p*-Xylene
CAS No. 108-38-3/106-42-3
- 704 *o*-Xylene
CAS No. 95-47-6

Volatile Organic Compound (VOC) Metabolites

- 706 N-Acetyl-S-(2-carboxyethyl)-L-cysteine
CAS No. 51868-61-2
- 710 N-Acetyl-S-(3-hydroxypropyl)-L-cysteine
CAS No. 23127-40-4
- 714 N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine
CAS No. 81690-92-8
- 718 N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine
- 722 N-Acetyl-S-(2-cyanoethyl)-L-cysteine
CAS No. 74514-75-3
- 726 N-Acetyl-S-(2-hydroxyethyl)-L-cysteine
CAS No. 15060-26-1

- 730 N-Acetyl-S-(phenyl)-L-cysteine
CAS No. 4775-80-8
- 734 N-Acetyl-S-(*n*-propyl)-L-cysteine
- 738 N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine
CAS No. 144889-50-9
- 742 N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine
- 746 N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine
CAS No. 159092-64-5
- 750 N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine
CAS No. 159092-65-6
- 754 2-Thioxothiazolidine-4-carboxylic acid
CAS No. 20933-67-9
- 758 N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine
CAS No. 33164-70-4
- 762 2-Aminothiazoline-4-carboxylic acid
CAS No. 40283-41-8
- 766 N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine
CAS No. 103974-29-4
- 770 Phenylglyoxylic acid
CAS No. 611-73-4
- 774 N-Acetyl-S-(2-hydroxypropyl)-L-cysteine
CAS No. 923-43-3
- 778 N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine
- 782 Mandelic acid
CAS No. 90-64-2, 611-71-2 (R), 17199-29-0 (S)
- 786 N-Acetyl-S-(trichlorovinyl)-L-cysteine
CAS No. 111348-61-9
- 790 N-Acetyl-S-(benzyl)-L-cysteine
CAS No. 19542-77-9
- 794 N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine
CAS No. 2148-31-4
- 798 N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine
CAS No. 126543-43-9
- 802 N-Acetyl-S-(dimethylphenyl)-L-cysteine
- 806 2-Methylhippuric acid
CAS No. 42013-20-7
- 810 3- and 4-Methylhippuric acid
CAS No. 27115-49-7, 27115-50-0

Appendices

- 814 Appendix A
- 818 Appendix C
- 833 Appendix D

Volume Two

Special Analysis of Pooled Samples for Select Chemicals

- 1 Special Analysis of Pooled Samples for Select Chemicals

Organochlorine Pesticides and Metabolites (Pooled Samples after 2004)

- 3 Aldrin
CAS No. 309-00-2
- 5 Dieldrin
CAS No. 60-57-1
- 7 Endrin
CAS No. 72-20-8
- 9 Heptachlor epoxide
CAS No. 1024-57-3
- 11 Oxychlordane
CAS No. 27304-13-8
- 19 *trans*-Nonachlor
CAS No. 39765-80-5
- 27 *p,p'*-DDT
CAS No. 50-29-3
- 35 *p,p'*-DDE
CAS No. 72-55-9
- 43 *o,p'*-DDT
- 45 Hexachlorobenzene
CAS No. 118-74-1
- 53 *beta*-Hexachlorocyclohexane
CAS No. 319-85-7
- 61 *gamma*-Hexachlorocyclohexane
- 69 Mirex
CAS No. 2385-85-5

Polybrominated Diphenyl Ethers and PBB 153 (Pooled Samples after 2004)

- 79 2,2',4'-Tribromodiphenyl ether (BDE 17)
CAS No. 147217-75-2
- 83 2,4,4'-Tribromodiphenyl ether (BDE 28)
CAS No. 41318-75-6
- 87 2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)
CAS No. 5436-43-1
- 91 2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)
CAS No. 189084-61-5
- 95 2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)
CAS No. 182346-21-0
- 99 2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)
CAS No. 60328-60-9
- 103 2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)
CAS No. 189084-64-8
- 107 2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)
CAS No. 68631-49-2
- 111 2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)
CAS No. 207122-15-4
- 115 2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)
CAS No. 207122-16-5
- 119 2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)
CAS No. 1163-19-5
- 122 2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)
CAS No. 59080-40-9

Polychlorinated Dibenzo-*p*-dioxins (Pooled Samples after 2004)

- 126 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin (HpCDD)

- 134 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin (HxCDD)
CAS No. 39227-28-6
- 142 1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin (HxCDD)
CAS No. 57653-85-7
- 150 1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin (HxCDD)
CAS No. 19408-74-3
- 158 1,2,3,4,6,7,8,9-Octachlorodibenzo-*p*-dioxin (OCDD)
CAS No. 3268-87-9
- 166 1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin (PeCDD)
CAS No. 40321-76-4
- 174 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD)
CAS No. 1746-01-6

Polychlorinated Dibenzofurans (Pooled Samples after 2004)

- 182 1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)
CAS No. 67562-39-4
- 190 1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)
CAS No. 55673-89-7
- 198 1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)
CAS No. 70648-26-9
- 206 1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)
CAS No. 57117-44-9
- 214 1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)
CAS No. 72918-21-9
- 222 2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)
CAS No. 60851-34-5
- 230 1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)
CAS No. 39001-02-0
- 238 1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)
CAS No. 57117-41-6
- 246 2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)
CAS No. 57117-31-4
- 254 2,3,7,8-Tetrachlorodibenzofuran (TCDF)
CAS No. 51207-31-9

Dioxin-like Polychlorinated Biphenyls: coplanar PCBs (Pooled Samples after 2004)

- 262 3,4,4',5'-Tetrachlorobiphenyl (PCB 81)
CAS No. 70362-50-4
- 270 3,3',4,4',5'-Pentachlorobiphenyl (PCB 126)
CAS No. 57465-28-8
- 278 3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)
CAS No. 32774-16-6

Dioxin-like Polychlorinated Biphenyls: mono-*ortho*-substituted PCBs (Pooled Samples after 2004)

- 286 2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)
CAS No. 32598-14-4
- 294 2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)
CAS No. 74472-37-0
- 300 2,3',4,4',5-Pentachlorobiphenyl (PCB 118)
CAS No. 31508-00-6
- 308 2',3,4,4',5-Pentachlorobiphenyl (PCB 123)
CAS No. 65510-44-3
- 312 2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)
CAS No. 38380-08-4

- 320 2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)
CAS No. 69782-90-7
- 328 2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)
CAS No. 52663-72-6
- 336 **2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)**
CAS No. 39635-31-9

Polychlorinated Biphenyls: Non-Dioxin-Like (Pooled Samples after 2004)

- 344 2,4,4'-Trichlorobiphenyl (PCB 28)
CAS No. 7012-37-5
- 352 2,2',3,5'-Tetrachloro biphenyl (PCB 44)
CAS No. 41464-39-5
- 358 2,2',4,5'-Tetrachloro biphenyl (PCB 49)
CAS No. 41464-40-8
- 364 2,2',5,5'-Tetrachlorobiphenyl (PCB 52)
CAS No. 35693-99-3
- 370 2,3',4,4'-Tetrachlorobiphenyl (PCB 66)
CAS No. 33025-41-1
- 378 2,4,4',5-Tetrachlorobiphenyl (PCB 74)
CAS No. 32690-93-0
- 386 2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)
CAS No. 41464-51-1
- 392 2,2',4,4',5-Pentachlorobiphenyl (PCB 99)
CAS No. 38380-02-8
- 400 2,2',4,5,5'-Pentachlorobiphenyl (PCB 101)
CAS No. 37680-73-2
- 406 **2,3,3',4',6-Pentachlorobiphenyl (PCB 110)**
CAS No. 74472-35-8
- 412 2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)
CAS No. 38380-07-3
- 418 **2,2',3,4,4',5' and 2,3,3',4,4',6-Hexachlorobiphenyl (PCB 138 & 158)**
CAS No. 52712-04-6 and 74472-42-7
- 426 2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)
CAS No. 51908-16-8
- 434 **2,2',3,4',5',6-Hexachlorobiphenyl (PCB 149)**
CAS No. 38380-04-0
- 440 **2,2',3,5,5',6-Hexachlorobiphenyl (PCB 151)**
CAS No. 52663-63-5
- 446 2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)
CAS No. 35065-27-1
- 454 2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)
CAS No. 35065-30-6
- 462 2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)
CAS No. 52663-74-8
- 468 2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)
CAS No. 40186-70-7
- 474 2,2',3,3',5,5',6-Heptachlorobiphenyl (PCB 178)
CAS No. 52663-67-9
- 482 2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)
CAS No. 35065-29-3
- 490 2,2',3,4,4',5',6-Heptachlorobiphenyl (PCB 183)
CAS No. 52663-69-1
- 498 2,2',3,4',5,5',6-Heptachlorobiphenyl (PCB 187)
CAS No. 52663-68-0

- 506 2,2',3,3',4,4',5,5'-Octachlorobiphenyl (PCB 194)
CAS No. 35694-08-7
- 514 2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)
CAS No. 52663-78-2
- 520 2,2',3,3',4,4',5,6' and 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203)
CAS No. 42740-50-1 and 52663-76-0
- 528 2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)
CAS No. 52663-73-7
- 536 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)
CAS No. 40186-72-9
- 544 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209)
CAS No. 2051-24-3

Exposure to Chemicals Found in Cigarette Smoke in U.S. Adults

- 551 Exposure to Chemicals Found in Cigarette Smoke in U.S. Adults: Analysis of Select Chemicals in a Special Sample

Metals and Metalloids (Special Sample: Adult Smokers & Nonsmokers)

- 552 Antimony
CAS No. 7440-36-0
- 554 Arsenic, Total
CAS No. 7440-38-2
- 556 Arsenic (V) acid
- 558 Arsenobetaine
CAS No. 64436-13-1
- 560 Arsenocholine
CAS No. 96055-45-7
- 562 Arsenous (III) acid
CAS No. 13464-58-9
- 564 Dimethylarsinic acid
CAS No. 917-76-0
- 566 Monomethylarsonic acid
CAS No. 65513-69-1
- 568 Trimethylarsine oxide
CAS No. 4964-14-1
- 570 Barium
CAS No. 81-25-4
- 572 Cadmium
CAS No. 81271-94-5
- 574 Cesium
CAS No. 7440-46-2
- 576 Cobalt
CAS No. 7440-48-4
- 578 Lead
CAS No. 7439-92-1
- 580 Manganese
CAS No. 8075-39-6
- 582 Molybdenum
CAS No. 7439-98-7
- 584 Strontium
CAS No. 7440-24-6
- 586 Thallium
CAS No. 7440-28-0
- 588 Tin
CAS No. 7440-31-5

590 Tungsten
CAS No. 7440-33-7

592 Uranium
CAS No. 7440-61-1

Perchlorate and Other Anions (Special Sample: Adult Smokers & Nonsmokers)

594 Nitrate
CAS No. 84145-82-4

596 Perchlorate
CAS No. 14797-73-0

598 Thiocyanate
CAS No. 302-04-5

Polycyclic Aromatic Hydrocarbon Metabolites (Adult Cigarette Smokers & Nonsmokers: Special Sample)

600 2-Hydroxyfluorene
CAS No. 2443-58-5

602 3-Hydroxyfluorene
CAS No. 6344-67-8

604 9-Hydroxyfluorene
CAS No. 1689-64-1

606 1-Hydroxyphenanthrene
CAS No. 2433-56-9

608 2-Hydroxyphenanthrene
CAS No. 605-55-0

610 3-Hydroxyphenanthrene
CAS No. 605-87-8

612 4-Hydroxyphenanthrene
CAS No. 7657-86-7

614 1-Hydroxypyrene
CAS No. 5315-79-7

616 1-Hydroxynaphthalene (1-Naphthol)
CAS No. 90-15-3

618 2-Hydroxynaphthalene (2-Naphthol)
CAS No. 135-19-3

Heterocyclic Amines

620 3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1)

622 **2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C)**

624 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (Ph1P)

626 **2-Amino-9H-pyrido[2,3-b]indole (A- α -C)**

628 2-Amino-3-methylimidazo[4,5-f]quinoline (IQ)

630 2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P1)

632 2-Aminodipyrido[1,2-a:3',2'-d]imidazole (GLU-P2) Harman

634 1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2)

636 Norharman

Volatile Organic Compounds (VOC)

640 1,1,1-Trichloroethane (Methyl chloroform)
CAS No. 71-55-6

641 1,1,1,2-Tetrachloroethane
CAS No. 79-34-5

642 1,2,3-Trichloropropane
CAS No. 96-18-4

- 643 1,2-Dibromoethane
CAS No. 106-93-4
- 644 1,2-Dichlorobenzene (*o*-Dichlorobenzene)
CAS No. 95-50-1
- 645 1,2-Dichloroethane (Ethylene dichloride)
CAS No. 107-06-2
- 646 1,3-Dichlorobenzene (*m*-Dichlorobenzene)
CAS No. 95-50-1
- 647 1,4-Dichlorobenzene (Paradichlorobenzene)
CAS No. 106-46-7
- 648 1,4-Dioxane
- 649 2,5-Dimethylfuran
CAS No. 625-86-5
- 650 Benzene
CAS No. 71-43-2
- 651 Bromodichloromethane
- 652 Chlorobenzene (Monochlorobenzene)
CAS No. 108-90-7
- 653 Chloroethane
- 654 Cyclohexane
- 655 Dibromochloromethane
- 656 Dichloromethane (Methylene chloride)
CAS No. 75-09-2
- 657 Diethylether
- 658 Ethyl acetate
- 659 Ethylbenzene
CAS No. 100-41-4
- 660 Furan
CAS No. 110-00-9
- 661 Heptane
- 662 Hexane
- 663 Isopropylbenzene (Cumene)
CAS No. 98-82-8
- 664 Methyl-*tert*-butyl ether (MTBE)
CAS No. 1634-04-4
- 665 Methylcyclopentane
- 666 Nitrobenzene
CAS No. 98-95-3
- 667 Octane
- 668 Tetrachloroethene (Perchloroethylene)
CAS No. 127-18-4
- 669 Tetrachloromethane (Carbon tetrachloride)
CAS No. 56-23-5
- 670 Tetrahydrofuran
- 671 Toluene
CAS No. 108-88-3
- 672 Tribromomethane (Bromoform)
- 673 Trichloroethene (Trichloroethylene)
CAS No. 79-01-6
- 674 Trichloromethane (Chloroform)

675 **aaa-Trifluorotoluene**

676 Vinyl bromide

677 *m-/p-* Xylene

CAS No. 108-38-3/106-42-3

678 *o*-Xylene

CAS No. 95-47-6

Volatile Organic Compound (VOC) Metabolites (Special Sample: Adult Smokers & Nonsmokers)

679 N-Acetyl-S-(2-carboxyethyl)-L-cysteine

CAS No. 51868-61-2

681 N-Acetyl-S-(3-hydroxypropyl)-L-cysteine

CAS No. 23127-40-4

683 N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine

CAS No. 81690-92-8

685 N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine

687 N-Acetyl-S-(2-cyanoethyl)-L-cysteine

CAS No. 74514-75-3

689 N-Acetyl-S-(2-hydroxyethyl)-L-cysteine

CAS No. 15060-26-1

691 N-Acetyl-S-(phenyl)-L-cysteine

CAS No. 4775-80-8

693 N-Acetyl-S-(n-propyl)-L-cysteine

695 N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine

CAS No. 144889-50-9

697 N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine

699 N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine

CAS No. 159092-64-5

701 N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine

CAS No. 159092-65-6

703 2-Thioxothiazolidine-4 carboxylic acid

CAS No. 20933-67-9

705 N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine

CAS No. 33164-70-4

707 2-Aminothiazoline-4-carboxylic acid

CAS No. 40283-41-8

709 N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine

CAS No. 103974-29-4

711 Phenylglyoxylic acid

CAS No. 611-73-4

713 N-Acetyl-S-(2-hydroxypropyl)-L-cysteine

CAS No. 923-43-3

715 N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine

717 Mandelic acid

CAS No. 90-64-2, 611-71-2 (R), 17199-29-0 (S)

719 N-Acetyl-S-(trichlorovinyl)-L-cysteine

CAS No. 111348-61-9

721 N-Acetyl-S-(benzyl)-L-cysteine

CAS No. 19542-77-9

723 N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine

CAS No. 2148-31-4

725 N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine

CAS No. 126543-43-9

727 N-Acetyl-S-(dimethylphenyl)-L-cysteine

729 2-Methylhippuric acid

CAS No. 42013-20-7

731 3- & 4-Methylhippuric acid

CAS No. 27115-49-7, 27115-50-0

Appendices

733 Appendix A

737 Appendix C

752 Appendix D

Fourth National Report on Human Exposure to Environmental Chemicals, Updated Tables, March 2018

The *Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, March 2018* (the *Updated Tables, March 2018*) presents nationally representative, cumulative biomonitoring data gathered from 1999–2000 through 2015–2016. It includes all the data from each of the previous *National Reports on Human Exposure to Environmental Chemicals* and each of the previous *Updated Tables* (collectively, the *Report and Updated Tables*).

In each survey period, the reported chemicals or their metabolites were measured in blood, serum, and urine samples from random subsamples of the National Health and Nutrition Survey (NHANES). These subsamples typically consisted of about 2,500 participants – exact numbers are included in the tables. Survey data and samples are collected by the Centers for Disease Control and Prevention (CDC's) National Center for Health Statistics. CDC's Environmental Health Laboratory (Division of Laboratory Sciences (DLS), National Center for Environmental Health) used mass spectrometry methods to obtain the blood, serum, and urine exposure measurements presented in the *Report and Updated Tables*.

The data tables for most chemicals from the 1999–2000 to 2009–2010 survey periods are located in one table. A second table includes data from the 2011–2012 survey period. For example, blood lead data for 1999–2010 are shown in one table, followed by a second table showing blood lead data for 2011–2014. Of note, not all chemicals have data for all survey cycles. Most of the table titles include the survey periods for which data are displayed in that table. For chemicals measured in pooled samples after 2003–2004, the first tables for a chemical presents results measured prior to 2005 in individual samples. The second table gives results for the pooled measurements.

The term *environmental chemical* refers to a chemical compound or chemical element present in air, water, food, soil, dust, or other environmental media (e.g., consumer products). Biomonitoring is the assessment of human exposure to chemicals by measuring the chemicals or their metabolites in human specimens such as blood or urine. A metabolite is a chemical alteration of the original compound produced by body tissues. Blood, serum, and urine levels reflect the amount of the chemical that actually gets into the body by all routes of exposure, including ingestion, inhalation, and dermal absorption. The measurement of an environmental chemical in a person's blood or urine is a measure of exposure; it does not by itself mean that the chemical causes disease or an adverse effect. Research studies, separate from these data, are required to determine which blood or urine levels are safe and which are associated with disease or an adverse effect.

For blood, serum, and urine levels, the *Report and Updated Tables* provide geometric means and percentiles of environmental chemicals by age group, gender and race/ethnicity. More in-depth statistical analysis, including multivariate analysis incorporating health endpoints and other predictive variables, is beyond the scope of this document. We encourage scientists to examine the data further through analysis of the raw data available at <http://www.cdc.gov/nchs/nhanes.htm>.

Recently, the *Updated Tables* expanded into two volumes:

- **Volume One** provides data on the general U.S. population. It includes recently released data from NHANES 2005–2006, 2007–2008, 2009–2010, 2011–2012, 2013–2014, and 2015–2016. Volume One also includes updated introductory sections from the *Fourth Report on Human Exposure to Environmental Chemicals, 2009*. These sections are the Data Sources and Data Analysis, Interpretation of Report and *Updated Tables* Data, and Chemical and Toxicological Information.
- **Volume Two** provides data for chemicals measured in pooled samples. Some of these chemicals were previously measured in individual samples. This volume includes recently released data from NHANES 2009–2010. Volume Two also provides data for the special sample of adult cigarette smokers and nonsmokers, including recently released data from NHANES 2013–2014. Of note, the age for eligibility in the special sample decreased from 20 years and older in NHANES 2011–2012 to 18 years and older in NHANES 2013–2014 (NHANES lowered the age for asking the smoking questions in 2013).

The *Updated Tables, March 2018* provides data for 346 chemicals, of which 38 are new and 176 have data updated since the *Updated Tables, January 2017*. Many of the data tables include a link at the bottom to a biomonitoring summary that has information about a specific chemical or chemical group. Several listings also have a link to a factsheet about the chemical or chemical group. Two appendices are updated to include information pertinent to these chemicals and the other chemicals included in the *Updated Tables* ([Appendix C. Limit of Detection Table](#); [Appendix D. References for Biomonitoring Methods](#)).

On the *Report* website, “Chemicals in the Fourth Report and *Updated Tables*” is a complete list of the chemicals in *Updated Tables March 2018*. The *Updated Tables, March 2018* provides data updated for 203 chemicals since the publication of the *Fourth Report* with new data for 135 chemicals.

The [National Report on Human Exposure to Environmental Chemicals](#) website is the best resource for updates of available data. The *Fourth National Report on Human Exposure to Environmental Chemicals, 2009*, can also be downloaded from this website.

Public Health Uses of the *Report* and *Updated Tables*

The overall purpose of the *Report* and *Updated Tables* is to provide specific information to scientists, physicians, and health officials to help prevent exposure to environmental chemicals. Some public health uses of the exposure information in the *Report* and *Updated Tables* include the following:

- To determine which chemicals are getting into U.S. residents and at what concentrations.
- To determine the prevalence of people with levels of chemicals above known toxicity levels (e.g., blood lead level greater than or equal to a specific concentration).
- To determine the prevalence of people with levels of chemicals that put them at increased risk for toxicity.
- To establish reference ranges that physicians and scientists can use to determine whether a person or group has an unusually high exposure. (This information is especially helpful to identify population groups that merit further assessment of exposure sources or health effects.)

- To assess the effectiveness of public health efforts to reduce exposure of U.S. residents to specific chemicals.
- To determine whether exposure levels are higher among potentially vulnerable groups, such as minorities and children.
- To track trends in levels of exposure of the population.
- To set priorities for research on human health effects.

What's New and Different?

The *Updated Tables, March 2018*, include chemicals that have results available from the NHANES survey periods 1999-2000 through 2015-2016. New chemicals measured for the first time include serum hydroxycotinine, urinary bisphenol F (BPF), bisphenol S (BPS), nine urinary flame retardant metabolites, blood cobalt and chromium, and two phthalate urinary metabolites (mono-3-hydroxybutyl phthalate and mono-2-methyl-2-hydroxypropyl phthalate). Serum per- and polyfluoroalkyl substances (PFAS) were measured in a special sample of children ages 3 to 11 years in NHANES 2013-2014 to provide data for younger children who are not included in the regular NHANES sample for the PFAS chemicals. Ten blood VOCs were measured for the first time in NHANES 2013-2014: chloroethane; cyclohexane; diethylether; ethyl acetate; heptane; methylcyclopentane; octane; tetrahydrofuran; $\alpha\alpha$ -trifluorotoluene; and vinyl bromide. Also in NHANES 2013-2014, 10 urinary heterocyclic aromatic amines were measured in the U.S. general population and in the special sample of adult cigarette smokers and nonsmokers.

Chemicals with updated data in this release are

- serum cotinine;
- blood cadmium, lead, manganese, total mercury, and selenium;
- urinary DEET metabolites;
- urinary phthalate metabolites;
- urinary polycyclic aromatic hydrocarbon (PAH) metabolites;
- blood VOCs, including disinfection by-products;
- urinary VOC metabolites;
- serum PBDEs and PBB 153 (pooled);
- serum organochlorine pesticides and metabolites (pooled);
- serum PCBs and mono-ortho-substituted PCBs (pooled);
- serum polychlorinated dibenzo-*p*-dioxins (pooled);
- serum polychlorinated dibenzofurans (pooled);
- serum dioxin-like polychlorinated biphenyls: coplanar PCBs (pooled).

Updated Tables in Two Volumes

Continuing with this release, we have expanded the *Updated Tables* to two volumes, each as a separate PDF. This change was made because the file size of the single PDF had become so large that it could not easily be shared or sent as an attachment. Volume One contains data tables for most of the chemicals measured in the U.S. general population. Volume Two contains data tables for the persistent organic pollutants and pesticides previously measured in individual samples and are currently measured in pooled samples. Volume Two also contains data tables for the special sample of adult cigarette smokers and nonsmokers, including recently released data from NHANES 2013-2014. We anticipate that future *Updated Tables* will continue to be presented in two volumes.

PFOS and PFOA Results for NHANES 2013-2014

Starting in 2013, we began measuring linear and branched isomers of both PFOS and PFOA and no longer measuring total PFOS or PFOA. The isomers of each chemical represent more than 95% of what was previously reported as PFOS and PFOA. PFOS and PFOA were calculated by summing the linear and branched isomers for each participant before applying the appropriate sample weight. Because the 2013-2014 values are a calculated sum, there is no limit of detection (LOD) for PFOS and PFOA. Data tables for each of the four isomers also are presented. See [Calculation of PFOS and PFOA as the Sum of the Isomers](#) for more details. The calculated PFOS and PFOA results can be used to compare with previous measurements and to examine trends in the general U.S. population.

The “What’s New and Different” sections in previous releases of *Updated Tables* is available in the Archives from *Updated Tables* at: <http://www.cdc.gov/exposurereport/>.

Data Sources and Data Analysis

Blood, serum, and urine samples from NHANES

Biomonitoring measurements for CDC's *National Report on Human Exposure to Environmental Chemicals* and *Updated Tables* (referred to as the *Report* and *Updated Tables*, respectively) are made using samples from participants in the National Health and Nutrition Examination Survey (NHANES), conducted by CDC's National Center for Health Statistics (NCHS). NHANES is designed to collect data on the health and nutritional status of the U.S. population. NHANES collects information about a wide range of health-related behaviors, performs physical examinations, and collects clinical samples for laboratory tests. Beginning in 1999, NHANES became a continuous survey, sampling the U.S. population annually and releasing the data in 2-year cycles. The sampling plan follows a complex, stratified, multistage, probability-cluster design to select a representative sample of the civilian, noninstitutionalized population in the United States based on age, gender, and race/ethnicity.

The NHANES protocol includes a home interview, followed by a standardized physical examination in a mobile examination center. As part of the examination, blood is obtained by venipuncture from participants aged 1 year and older, and urine specimens are collected from participants aged 6 years and older. Starting with the 2015–2016 survey, urine specimens were collected from children ages 3–5 years. Additional detailed information on the design and conduct of the NHANES survey is available at <http://www.cdc.gov/nchs/nhanes.htm>.

NHANES measures environmental chemicals in blood, serum, or urine specimens. Most of the environmental chemicals are measured in randomly selected subsamples within specific age groups. Randomization of subsample selection is built into the NHANES design before sample collection begins. Different random subsamples include different participants. Subsampling is needed to ensure an adequate quantity of sample for analysis and the mass spectrometry analytical methods.

- Data tables in the *Report* and *Updated Tables* specify age groups and sample sizes for each exposure measurement.
- Blood measurements in children younger than 12 years are limited by the amount of blood that can be collected.
- Blood metals are measured in participants aged 1 year and older.
- Beginning in 2011, the blood mercury species methyl mercury and ethyl mercury were added.
- Serum cotinine and hemoglobin adducts of acrylamide and glycidamide are measured in the entire NHANES sample for participants ages 3 years and older.
- Cotinine data are shown only in nonsmokers in the *Report* and *Updated Tables*.
- Most measurements of chemicals in serum are made in samples from participant ages 12 years and older.
- Urine was collected from participants ages 6 years and older until 2015, when it became possible to collect urine from children as young as 3 years.
- Most urine chemicals are measured in a representative one-third subsample, but a full sample is used for participants ages 3–5 years.

If a particular chemical or an entire chemical group has no detectable results for three survey periods, it is usually not measured in subsequent survey periods.

- The sulfonyl urea herbicide group was measured in NHANES 2003–2004, 2005–2006, and 2007–2008 with no detections, even at the 95th percentile, so this group is no longer measured in the ongoing survey.
- Mono-*n*-octyl phthalate (MOP), a phthalate urinary metabolite, was not detected above the 95th percentile for more than three survey cycles, so it was no longer reported after 2010.
- Several banned organophosphate and organochlorine pesticides have become largely undetectable and are no longer measured.
- Some chemicals are widely detected but have had unchanging levels in the population (e.g., phytoestrogens) and are no longer measured.

By discontinuing measurements of chemicals that are rarely or not detectable, or well-characterized chemicals for which the source of exposure is consistent, CDC's Environmental Health Laboratory can better allocate and optimize its limited resources. It can use those resources to develop methods to measure new chemicals of concern and continue to measure population exposure to chemicals of concern.

Beginning with NHANES 2005–2006, CDC used a weighted pooled-sample design to measure serum concentrations of dioxins, furans, polychlorinated biphenyls (PCBs), organochlorine pesticides and metabolites, and brominated flame retardants (polybrominated diphenyl ethers and polybrominated biphenyl [PBB] 153). Pooled samples are used when larger sample volumes are needed to improve the sensitivity of the measurements and to reduce the number of samples being analyzed, balancing the cost of the analysis against a low frequency of detectable results.

The following considerations guided the selection of chemicals in the *Report* and *Updated Tables*:

- Scientific data suggested exposure in the U.S. population.
- Health effects known or suspected to result from some levels of exposure were serious enough to cause concern.
- Data were needed to assess the effectiveness of public health actions to reduce exposure to a chemical.
- Biomonitoring analytical methods could provide results with adequate accuracy, precision, sensitivity, specificity, and throughput.
- Adequate blood or urine samples were available.
- Incremental analytical costs to perform the biomonitoring analysis for the chemical were reasonable.

The availability of biomonitoring methods with adequate performance and acceptable cost was a major consideration. Details on the prioritization process for scoring nominated chemicals and the resulting scores are available at:

https://www.cdc.gov/exposurereport/chemical_selection.html.

Laboratory Analysis

CDC's Environmental Health Laboratory (Division of Laboratory Sciences, National Center for Environmental Health) made the blood, serum, and urine exposure measurements in the *Report* and *Updated Tables*. The following analytical techniques were used for measuring the environmental chemicals or their metabolites in blood, serum, and urine:

- Isotope dilution mass spectrometry
- Inductively coupled plasma mass spectrometry
- Graphite furnace atomic absorption spectrometry

Laboratory measurements underwent extensive quality control and quality assurance review:

- Tolerance limits for operational parameters were maintained.
- Quality control samples were measured in each analytical run to detect unacceptable performance in accuracy or precision.
- Traceable calibration materials were verified.

Appendix D lists references for the analytical methods used to measure the different chemicals.

Data Analysis

NHANES is a complex, stratified, multistage, probability-cluster design survey. Because of that, sample weights must be used to adjust for the unequal probability of selection into the survey. Sample weights also are used to adjust for possible bias resulting from nonresponse and are post-stratified to U.S. Census Bureau estimates of the U.S. population. Data were analyzed using Statistical Analysis System (SAS) (SAS Institute Inc., 2002) and the SUDAAN (RTI International, NC) statistical software packages. SUDAAN uses sample weights and calculates variance estimates that account for the complex survey design. The design does not permit straightforward analysis of exposure levels by non-targeted strata such as locality, state, or region; seasons of the year; proximity to sources of exposure; or by use of particular products. NCHS guidelines for analysis of NHANES data are available at <https://wwwn.cdc.gov/nchs/nhanes/analyticguidelines.aspx>.

The *Report* and *Updated Tables* present descriptive statistics on the blood, serum, or urine levels for each environmental chemical reported. Statistics include unadjusted geometric means and percentiles with confidence intervals. In each table, results are given for the total population and by age group, gender, and race/ethnicity, as defined in NHANES. For these analyses, based on the sample design, race/ethnicity is categorized as Mexican American, non-Hispanic black, and non-Hispanic white. Beginning in 2011–2012, two additional categories were added: all Hispanic and non-Hispanic Asian (referred to as Asian in the tables). Other racial/ethnic groups are sampled, but the proportion of the total U.S. population represented by other racial/ethnic groups is not large enough to produce valid estimates. Other racial/ethnic groups are included in estimates that are based on the entire population sample. Age groups are as described for each chemical in each data table. Gender is coded as male or female.

Units

For chemicals measured in urine, levels are presented per volume of urine and per gram of creatinine. Urinary levels are expressed both ways in the literature and used for different purposes. Levels per gram of creatinine (i.e., creatinine corrected) adjust for urine dilution. For example, a person who drinks more fluids than another person will likely have a higher, but more dilute, urine output. Interpretation of creatinine-corrected results should also recognize that creatinine correction can partially adjust for differences in lean body mass or renal function among persons. Children and young adolescents typically have less muscle mass than adults. Because muscle is an important source of creatinine in urine, children have lower urinary creatinine concentrations than do adults. The lower urine creatinine concentration can result in higher creatinine-corrected results in children in comparison with adults.

For dioxins, furans, PCBs, and organochlorine pesticides, serum levels are presented per gram of total lipid and per whole weight of serum. These compounds are lipophilic and concentrate in the body's lipid stores, including the lipid in serum. Serum levels reported per gram of total lipid reflect the amount of these compounds stored in body fat. Serum levels per whole weight of serum are also included for easier comparison with studies investigating exposure to these chemicals and reported levels in these units. Other mostly non-lipophilic chemicals measured in serum are expressed per liter of serum (e.g., micrograms per liter). Acrylamide and glycidamide adducts are expressed in picomoles per gram of blood hemoglobin.

Results are reported in standard units, generally conforming to those most commonly used in biomonitoring measurements. Table 2 shows some useful unit conversions.

Table 2. Units of measurements and abbreviations

Unit	Abbreviation	Value
liter	L	
deciliter	dL	10^{-1} liters
milliliter	mL	10^{-3} liters
gram	g	
milligram	mg	10^{-3} grams
microgram	μ g	10^{-6} grams
nanogram	ng	10^{-9} grams
picogram	pg	10^{-12} grams
femtogram	fg	10^{-15} grams

Geometric means

A geometric mean gives a better estimate of central tendency for data that are distributed with a long tail at the upper end of the distribution. This type of distribution is common when measuring environmental chemicals in blood or urine. The geometric mean is influenced less by high values than is the arithmetic mean. In the *Report* and *Updated Tables*, geometric means are calculated by taking the log of each concentration and then using SUDAAN software to compute the weighted mean of those log-transformed values. Ninety-five percent confidence intervals around the weighted mean are calculated by adding and subtracting an amount equal to the product of a Student's *t*-statistic and the standard error of the weighted mean estimate. The degrees of freedom of the *t*-statistic was determined by subtracting the number of strata from the number of primary sampling units, according to the data available from the complex survey design. The standard error was computed with SUDAAN's PROC DESCRIPT procedure and "with replacement" design option (design = WR), with Taylor series linearization used for variance estimation. The weighted geometric mean and its confidence limits were obtained by taking the antilog of this weighted mean and its upper and lower confidence limits.

The measured value for a pooled sample is comparable to an arithmetic average of measurements in individuals. Consequently, the pooled sample result is expected to be higher than the geometric mean of multiple individual results. In addition, direct calculation of the design effects required for accurate standard error and confidence interval estimation is not possible because samples are pooled across the design cells of the original survey. For these reasons, data tables showing the pooled sample results present only weighted arithmetic means and unadjusted standard errors for each category. The standard errors are unadjusted and

therefore, do not reflect the design effects of the survey. In many cases, the standard errors are based on very few pooled sample measurements and cannot be expected to accurately reflect the true imprecision of the weighted arithmetic mean estimates. Therefore, when the unadjusted standard error was more than 30% of the weighted arithmetic mean, this is noted with a double asterisk (**) and footnoted.

Limit of detection

The limit of detection (LOD) is the level at which the measurement has a 95% probability of being greater than zero (Taylor 1987). In the *Updated Tables*, the LODs for each chemical and survey period are provided in a footnote to each data table and collectively in Appendix C. Concentrations less than the LOD are assigned a value equal to the LOD divided by the square root of two for calculation of geometric means. Assigning a value of the LOD divided by two made little difference in geometric mean estimates. If the proportion of results below the LOD was greater than 40%, geometric means were not calculated. For the same chemical, LOD values sometimes change over time as a result of improvements to analytical methods. One possible consequence is that results reported as "< LOD" in the 1999–2000 data might be reported as a concentration value above the LOD in 2001–2002 or 2003–2004 because the analytical method had improved. Thus, for proper interpretation of LODs in the data tables, care must be taken to use the LOD that applies to the survey period. Percentile estimates (see below) that are less than the LOD for the chemical analysis were reported as "< LOD."

For most chemicals, the LOD is constant for each specimen analyzed. Dioxins, furans, PCBs, organochlorine pesticides, and a few other pesticides are different: these have an individual LOD for each sample, mostly because the sample volume used for each analysis was different. A higher sample volume results in a lower LOD (i.e., a better ability to detect low levels). The maximum LOD values are given in each data table and in Appendix C. The maximum LOD was the highest LOD among all samples analyzed. Typically, the mean LOD is about 40%–50% of the maximum LOD. The same procedure for imputing values below the LOD in calculations of geometric means was used for chemicals with individual LODs for each sample. Concentrations less than the individual LOD were assigned a value equal to the individual LOD divided by the square root of two. When reporting percentiles for chemicals with individual sample LODs, if any sample LOD in the demographic group was above the percentile estimate, then the percentile estimate was not reported.

For chemicals measured in urine, separate tables are presented for the chemical concentration expressed per volume of urine (uncorrected table) and the chemical concentration expressed per gram of creatinine (creatinine corrected table). Geometric mean and percentile calculations were performed separately for each of these concentrations. LOD calculations were performed using the chemical concentration expressed per volume of urine, because this concentration determines the analytical sensitivity. For this reason, LOD results for urine measurements in each data table and in Appendix C are in units of weight per volume of urine. In the creatinine corrected tables, a result for a geometric mean or percentile was reported as < LOD if the corresponding geometric mean or percentile was < LOD in the table using weight per volume of urine. For example, if the 50th percentile for males was < LOD in the table using weight per volume of urine, it would also be < LOD in the creatinine corrected table.

For chemicals measured in serum lipid, separate tables are presented for the chemical concentration expressed per volume of serum (lipid unadjusted table) and the chemical concentration expressed per amount of lipid (lipid adjusted table). Geometric mean and percentile calculations were performed separately for each of these concentrations. LOD

calculations were performed using the chemical concentration expressed per amount of lipid, because this concentration determines the analytical sensitivity. For this reason, LOD results for chemicals measured in each data table and in Appendix C are in weight per amount of lipid. In the lipid unadjusted tables, a result for a geometric mean or percentile was reported as < LOD if the corresponding geometric mean or percentile was < LOD in the lipid adjusted table.

Percentiles

Percentiles (50th, 75th, 90th, and 95th) provide additional information about the shape of the distribution. Percentile estimates and 95% confidence interval estimates that are less than the limit of detection are indicated as <LOD in the data tables. An explanation of the procedure for estimating percentiles is provided in Appendix A and example using SAS Callable SUDAAN is provided on the website (see “SAS Code Example” at: www.cdc.gov/exposurereport).

Reference

Taylor JK. 1987. Quality assurance of chemical measurements. Boca Raton, FL: Lewis Publishers.

Interpretation of *Report* and *Updated Tables* Data: Important Factors

Research studies, separate from the *Report* and *Updated Tables*, are required to determine whether blood or urine levels are safe or are associated with disease or adverse effects.

The measurement of an environmental chemical in a person's blood or urine does not mean, by itself, that the chemical causes disease. Advances in analytical methods allow us to measure low levels of environmental chemicals in people, but separate studies of varying exposure levels and health effects are needed to determine whether blood or urine levels result in disease. These studies must also consider other factors such as duration of exposure. The *Report* and *Updated Tables* do not present new data on health risks from different exposures.

For some environmental chemicals, such as lead, research studies have given us a good understanding of the health risks associated with different blood levels. However, for many environmental chemicals, we need more research to assess health risks from different blood or urine levels. The results shown in the *Report* and *Updated Tables* should help prioritize and foster research on human health risks that result from exposure to environmental chemicals. For more information about exposure to environmental chemicals, see the section later in this document titled "Chemical and Toxicological Information", which includes Internet reference sites.

Persistent and non-persistent chemicals; Use of percentiles; Comparison of levels between groups

In the *Report* and *Updated Tables*, most measurements in urine quantify chemical metabolites of non-persistent chemicals (those that do not stay in the body a long time). Metals and some tobacco biomarkers (e.g., heterocyclic amines) measured in urine are exceptions for they are not metabolites. Persistent chemicals (those that stay in the body for a long time) are usually measured in serum as the parent chemical.

The higher percentiles (75th, 90th, 95th) provided for each chemical convey useful information about the upper distribution and range of levels in the population. The 95th percentile is helpful when determining whether levels observed in separate public health investigations or other studies are unusual.

Levels of chemicals are provided for the demographic groups as stratified by age, gender, and race/ethnicity. Demographic groups may not be equal in their composition with respect to other variables. Chemicals measured in pooled serum samples are stratified by combined demographic groups (e.g., non-Hispanic black females, ages 12-19 years). CDC scientists publish separate scientific papers that make detailed comparisons of levels of chemicals in different demographic groups. See <http://www.cdc.gov/exposurereport/> for a list of peer-reviewed biomonitoring papers.

Not all the chemicals in the *Report* and *Updated Tables* are measured in the same individuals. Therefore, it is not possible to determine the fraction of all measured chemicals that were found at detectable levels in a given person.

Blood, serum, and urine levels of a chemical should not be confused with levels of the chemical in air, water, food, soil, or dust.

Concentrations of environmental chemicals in blood or urine are not the same as those in air, water, food, soil, or dust. For example, a chemical concentration of 10 µg/L in water does not produce a level of 10 µg/L in blood or urine. Blood or urine levels may reflect exposure from one or more sources, including air, water, food, soil, and dust.

Levels of a chemical in blood, serum, and urine are determined by how much of the chemical has entered the body through all routes of exposure, including ingestion, inhalation, and dermal absorption, and how the chemical is distributed in body tissues, transformed into metabolites, and eliminated from the body. Although the levels in the blood, serum and urine are measures of the amount of a chemical that has entered the body by all routes of exposure, the blood or urine level alone does not determine which exposure source or which route of exposure has occurred.

Calculation of Urinary Inorganic-related Arsenic Species

We present data for the urinary inorganic-related arsenic species. The values are calculated using results for each NHANES survey period for the following four arsenic species: arsenic (V) acid, arsenous (III) acid, dimethylarsinic acid (DMA), and monomethylarsonic acid (MMA). The sum of the four species is calculated for each individual NHANES participant. If the value of a species is less than the limit of detection (LOD), then the imputed value is used. The imputed value is calculated as the LOD divided by the square root of 2 (Hornung and Reed, 1990) and imputed values are provided in the NHANES public release file. If all four arsenic species are reported as less than the LOD, then the sum will be the sum of the four imputed values. The geometric means, selected percentiles, and confidence intervals are calculated using sums with detectable values of 60 percent or higher. If the detection frequency for a category is less than 60 percent, this is indicated by an asterisk (*). There is no LOD for the inorganic-related arsenic species because the values are calculated, rather than measured.

Reference: Hornung RW, Reed LD. 1990. Estimation of average concentration in the presence of nondetectable values. *Appl Occup Environ Hyg* 5(1):46-51.

Calculation of PFOS and PFOA as the Sum of the Isomers

Beginning with NHANES 2013-2014, we report results for both serum PFOS and PFOA as the sum of their respective isomers. This is because in 2013 we began measuring separately linear and branched isomers of both PFOS and PFOA and no longer measure total PFOS or PFOA. This calculated sum of PFOS (or PFOA) isomers is comparable to the total PFOS (or PFOA) reported before. Production of PFOS and PFOA employed electrochemical fluorination (ECF) or fluorotelomerization. ECF used from the 1950s until the early 2000s yielded branched and linear isomers. In contrast, fluorotelomerization produced almost exclusively linear compounds. Measurement of the two types of isomers may be informative because branched isomers may be eliminated from the body more rapidly than linear isomers (Benskin et al, 2009a). In addition, separate measurements may provide information that is helpful for evaluating exposure source contributions (Benskin et al, 2010, 2009b).

The value of PFOS is calculated as the sum of branched PFOS isomers (perfluoromethylheptane sulfonate isomers, Sm-PFOS) plus the linear isomer (*n*-PFOS). PFOA is calculated as the sum of branched PFOA isomers (Sb-PFOA) plus the linear isomer (*n*-PFOA). For each chemical (PFOS and PFOA), the sum of the branched and linear isomers is calculated for each individual NHANES participant. If the value for any isomer is below the limit of detection (LOD), then the imputed value is used. The imputed value is calculated as the LOD divided by the square root of 2 (Hornung and Reed, 1990) and imputed values are provided in the NHANES public release file. If both isomers for calculating either PFOS or PFOA are reported as less than the LOD, then two imputed values are summed. These calculated PFOA and PFOS results can be used to compare with previous measurements and examine trends in the U.S. population.

The geometric means, selected percentiles, and confidence intervals are calculated using sums with detectable values of 60 percent or higher. If the detection frequency for a category is less than 60 percent, this is indicated by an asterisk (*). Beginning with 2013-2014, values for PFOA and PFOS are a calculated sum so there is no limit of detection (LOD) for either of these two chemicals.

The branched isomers of PFOS (Sm-PFOS) and PFOA (Sb-PFOA) are a mixture of isomers. The isomers known to be included in Sm-PFOS are perfluoro-3-methylheptane sulfonate, perfluoro-4-methylheptane sulfonate, perfluoro-5-methylheptane sulfonate, and perfluoro-6-methylheptane sulfonate. The isomers known to be included in Sb-PFOA are perfluoro-3-methylheptanoic acid, perfluoro-4-methylheptanoic acid, perfluoro-5-methylheptanoic acid, perfluoro-6-methylheptanoic acid, perfluoro-4,4-dimethylhexanoic acid, perfluoro-5,5-dimethylhexanoic acid, perfluoro-3,5-dimethylhexanoic acid, and perfluoro-4,5-dimethylhexanoic acid. The linear isomers of PFOS (*n*-PFOS) and PFOA (*n*-PFOA) are single chemicals. Data tables are also presented for each of the four isomers that were measured.

References:

Benskin JP, Hold A, Martin JW. 2009a. Isomer-specific biotransformation rates of a perfluorooctane sulfonate (PFOS) precursor by cytochrome P450 isozymes and human liver microsomes. *Environ Sci Technol* 43:8566-8572.

Benskin JP, DeSilver AO, Martin LJ, Arsenault G, McCrindle R, Riddell N, et al. 2009b. Disposition of perfluorinated acid isomers in Sprague-Dawley rats: part 1: single dose. *Environ Toxicol Chem* 28:542-554.

Benskin JP, DeSilver AG, Martin JW. 2010. Isomer profiling of perfluorinated substances as a tool for source tracking: a review of early findings and future applications. *Rev Environ Contamin Toxicol* 208:111-160.

Hornung RW, Reed LD. 1990. Estimation of average concentration in the presence of nondetectable values. *Appl Occup Environ Hyg* 5(1):46-51.

Chemical and Toxicological Information

The *National Report on Human Exposure to Environmental Chemicals* and *Updated Tables* (referred to as the *Report* and *Updated Tables*, respectively) presents biomonitoring data on the exposure of the U.S. population to environmental chemicals. The measurement of an environmental chemical in a person's blood or urine does not mean, by itself, that the chemical causes disease or adverse effects. Advances in analytical methods allow us to measure lower and lower levels of environmental chemicals in people. Separate studies of varying exposure levels and health effects associated with these levels are required to determine whether blood, serum, and urine levels result in disease or adverse effects. The data and information in the *Report* and *Updated Tables* do not establish health effects nor do they create guidelines.

Where can I find more information?

For more information about environmental chemicals, web links are provided below. Links to nonfederal organizations are provided solely as a service to our readers. These links do not constitute an endorsement of these organizations or their programs by CDC or the federal government. CDC is not responsible for the content of an individual organization's Web pages found at these links.

U.S. Governmental Sources

Centers for Disease Control and Prevention (CDC)

- National Center for Health Statistics (NCHS) (<http://www.cdc.gov/nchs>)
- National Health and Nutrition Examination Survey (NHANES) (<http://www.cdc.gov/nchs/nhanes.htm>)
- National Institute for Occupational Safety and Health (NIOSH) (<http://www.cdc.gov/niosh/data/>)
 - Registry of Toxic Effects of Chemical Substances (RTECS) (<http://www.cdc.gov/niosh/rtecs>)
- National Center for Environmental Health (NCEH) (<https://www.cdc.gov/nceh/>)
- National Biomonitoring Program (<https://www.cdc.gov/biomonitoring/>)

Agency for Toxic Substances and Disease Registry (ATSDR)

- Toxicological Profiles and ToxFAQs
 - ToxFAQs <https://www.atsdr.cdc.gov/toxfaqs/Index.asp>
 - Toxicological Profiles <https://www.atsdr.cdc.gov/ToxProfiles/index.asp>
- Toxic Substances Portal (<http://www.atsdr.cdc.gov/substances/index.asp>)

U.S. Food and Drug Administration (FDA)

- Center for Food Safety and Applied Nutrition
 - <https://www.fda.gov/AboutFDA/CentersOffices/OfficeofFoods/CFSAN/default.htm>
- National Center for Toxicological Research
 - <https://www.fda.gov/AboutFDA/CentersOffices/OC/OfficeofScientificandMedicalPrograms/NCTR/default.htm>

U.S. Environmental Protection Agency (EPA)

- Integrated Risk-Information System (IRIS) (<http://www.epa.gov/iris>)
- Office of Chemical Safety and Pollution Prevention (OCSP) (<https://www.epa.gov/aboutepa/about-office-chemical-safety-and-pollution-prevention-ocsp>)
- Office of Drinking Water (<https://www.epa.gov/ground-water-and-drinking-water>)

U.S. Geological Survey (USGS) (<https://www.usgs.gov/>)

U.S. Department of Agriculture (USDA)

- Food Safety and Inspection Service (<https://www.fsis.usda.gov/wps/portal/fsis/home>)

National Institutes of Health (NIH)

- National Institute for Environmental Health Sciences (NIEHS) (<http://www.niehs.nih.gov>)
- National Toxicology Program (NTP) (<http://ntp.niehs.nih.gov>), 14th Report on Carcinogens (<https://ntp.niehs.nih.gov/pubhealth/roc/index-1.html>)
- National Library of Medicine (NLM), Toxicology Data Network (<http://toxnet.nlm.nih.gov>)
- National Library of Medicine (NLM), Tox Town (Environmental Health Concerns and Toxic Chemicals Where You Live, Work, and Play) (<https://toxtown.nlm.nih.gov/>)
- National Library of Medicine (NLM), Environmental Health and Toxicology, online Toxicology Tutorial (<https://toxmentor.nlm.nih.gov/index.html>)

Professional and Academic Organizations

- American Conference of Governmental Industrial Hygienists (<http://www.acgih.org/home>)
- Association of Public Health Laboratories (<http://www.aphl.org>)
- Pediatric Environmental Health Specialty Units (PEHSUs) (<http://www.PEHSU.net>)
- International Occupational Safety and Health
 - Information Center International Chemical Safety Cards (http://www.ilo.org/safework/info/publications/WCMS_113134/lang--en/index.htm)
- The EXtension TOXicology NETwork (EXTOXNET)
 - Pesticide Information Profiles (<http://extoxnet.orst.edu/pips/ghindex.html>)

World Health Organization

International Programme on Chemical Safety (IPCS) (<http://www.who.int/pcs>)

- Monographs of the Joint FAO/WHO Meeting on Pesticide Residues (<http://www.inchem.org/pages/jmpr.html>)
- Environmental Health Criteria documents (<http://www.who.int/ipcs/publications/ehc/en/>)

International Agency for Research on Cancer (IARC) (www.iarc.fr)

- Monographs on the Evaluation of Carcinogenic Risks to Humans (<http://monographs.iarc.fr/index.php>)

Acrylamide (2003 – 2006)

Geometric mean and selected percentiles of hemoglobin adduct concentrations (in pmol/g hemoglobin) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	61.2 (58.1-64.4)	54.8 (52.8-57.7)	79.1 (73.5-85.6)	141 (124-155)	192 (168-217)	7101
	05-06	61.6 (58.1-65.4)	54.8 (52.8-56.8)	79.1 (75.1-86.1)	165 (151-178)	221 (204-246)	7857
Age group							
3-5 years	03-04	59.4 (53.6-65.7)	58.6 (51.7-64.9)	75.7 (63.4-83.6)	90.6 (81.9-105)	108 (86.2-118)	350
	05-06	59.1 (55.8-62.6)	63.6 (58.6-66.4)	74.4 (73.2-76.3)	90.3 (80.8-100)	102 (87.3-121)	483
6-11 years	03-04	58.6 (56.1-61.2)	57.3 (55.2-59.7)	71.0 (67.4-76.3)	86.8 (81.2-91.4)	98.8 (91.0-104)	769
	05-06	56.1 (53.9-58.5)	57.1 (54.8-59.9)	67.8 (65.3-69.8)	78.8 (74.9-86.8)	93.8 (81.1-103)	924
12-19 years	03-04	57.4 (54.4-60.5)	54.5 (52.1-57.4)	70.7 (65.6-75.7)	100 (89.2-114)	132 (115-151)	1889
	05-06	56.4 (52.5-60.6)	53.1 (50.7-55.8)	69.5 (66.2-73.1)	112 (98.0-127)	162 (131-221)	1977
20-59 years	03-04	66.2 (62.2-70.6)	57.9 (54.6-61.1)	96.1 (83.6-108)	163 (147-191)	223 (194-243)	2570
	05-06	66.8 (62.1-71.9)	56.4 (53.7-59.8)	101 (87.1-118)	196 (177-210)	257 (222-298)	3066
60 years and older	03-04	50.1 (47.9-52.3)	46.5 (44.0-49.2)	61.0 (57.6-66.0)	96.1 (88.0-108)	141 (120-152)	1523
	05-06	52.5 (49.4-55.7)	47.8 (45.0-49.6)	65.9 (60.2-71.6)	136 (112-156)	184 (167-198)	1407
Gender							
Males	03-04	63.9 (60.2-67.9)	57.0 (53.7-60.1)	85.5 (79.2-93.7)	152 (139-175)	220 (189-237)	3509
	05-06	65.7 (61.5-70.1)	57.5 (55.1-60.4)	91.5 (80.9-101)	183 (163-208)	246 (213-277)	3826
Females	03-04	58.7 (55.9-61.5)	53.4 (51.8-55.9)	73.9 (69.5-80.6)	126 (111-142)	164 (147-191)	3592
	05-06	58.1 (54.6-61.7)	52.8 (50.9-54.7)	73.1 (68.3-78.2)	146 (131-160)	199 (182-211)	4031
Race/ethnicity							
Mexican Americans	03-04	61.7 (58.7-64.9)	57.4 (54.4-60.4)	73.0 (69.2-77.3)	101 (95.0-115)	149 (125-179)	1792
	05-06	57.2 (54.0-60.7)	54.8 (51.4-58.2)	70.2 (67.2-73.7)	94.0 (86.2-104)	130 (110-148)	2035
Non-Hispanic blacks	03-04	63.8 (57.3-71.1)	57.1 (52.1-64.1)	86.5 (74.6-104)	156 (120-203)	218 (172-271)	1874
	05-06	58.1 (53.5-63.2)	54.2 (52.4-55.7)	82.3 (74.0-95.4)	170 (147-189)	226 (198-259)	2061
Non-Hispanic whites	03-04	62.4 (59.0-66.0)	55.3 (53.0-58.6)	82.2 (75.4-89.1)	146 (129-163)	197 (172-223)	2994
	05-06	63.9 (59.8-68.3)	55.4 (53.0-58.5)	83.8 (76.5-94.9)	177 (160-194)	228 (208-258)	3153

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 and 05-06 are 3.0 and 0.11, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Glycidamide (2003 – 2006)

Geometric mean and selected percentiles of hemoglobin adduct concentrations (in pmol/g hemoglobin) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	59.3 (56.7-62.1)	59.9 (57.6-62.5)	85.9 (81.6-90.5)	130 (120-141)	167 (153-181)	7278
	05-06	50.4 (46.9-54.1)	49.4 (46.5-52.4)	71.3 (67.1-75.6)	109 (98.4-120)	142 (130-151)	7740
Age group							
3-5 years	03-04	71.6 (66.9-76.7)	71.1 (66.9-78.9)	94.7 (87.3-101)	118 (103-126)	126 (119-135)	411
	05-06	66.7 (61.5-72.2)	72.9 (65.9-76.3)	89.4 (82.8-96.8)	107 (104-113)	120 (109-129)	482
6-11 years	03-04	74.1 (70.3-78.2)	75.0 (70.9-77.9)	95.6 (90.4-103)	121 (112-134)	141 (126-157)	784
	05-06	58.2 (55.4-61.2)	59.6 (57.3-61.8)	73.7 (70.0-77.5)	90.8 (81.3-99.8)	106 (93.8-113)	907
12-19 years	03-04	55.4 (51.1-60.1)	59.2 (56.1-62.1)	79.2 (72.7-86.7)	113 (94.9-138)	146 (123-169)	1931
	05-06	48.2 (45.1-51.6)	47.3 (44.8-49.3)	64.1 (60.5-67.9)	92.0 (82.8-103)	123 (103-149)	1944
20-59 years	03-04	62.5 (59.4-65.8)	60.9 (58.7-64.4)	90.7 (84.4-98.2)	143 (130-159)	187 (169-204)	2623
	05-06	52.3 (47.9-57.1)	50.1 (46.3-54.2)	74.5 (69.5-80.9)	121 (107-134)	154 (140-179)	3025
60 years and older	03-04	45.5 (42.8-48.3)	46.8 (44.8-49.3)	65.2 (63.5-66.9)	96.4 (90.0-103)	129 (111-141)	1529
	05-06	40.9 (38.1-44.0)	39.5 (37.4-42.7)	56.7 (51.1-63.8)	88.7 (75.7-103)	118 (103-133)	1382
Gender							
Males	03-04	59.5 (56.9-62.3)	59.4 (56.8-61.8)	87.1 (82.5-92.3)	136 (123-148)	174 (157-197)	3604
	05-06	50.8 (46.9-55.0)	49.4 (46.1-53.2)	74.5 (70.2-78.8)	113 (102-127)	148 (131-165)	3761
Females	03-04	59.1 (56.0-62.5)	60.4 (57.5-64.0)	85.0 (80.2-90.0)	125 (116-135)	159 (143-175)	3674
	05-06	50.0 (46.7-53.6)	49.2 (46.5-52.3)	68.3 (63.9-73.2)	101 (93.8-114)	136 (125-145)	3979
Race/ethnicity							
Mexican Americans	03-04	64.7 (61.2-68.4)	65.4 (61.1-70.1)	87.4 (81.5-94.4)	118 (110-129)	152 (135-170)	1841
	05-06	50.3 (46.5-54.4)	50.7 (46.8-54.8)	66.1 (61.6-70.5)	86.6 (80.6-95.8)	106 (98.1-114)	2022
Non-Hispanic blacks	03-04	53.8 (51.1-56.7)	56.0 (52.4-59.7)	83.0 (75.2-91.5)	121 (108-140)	159 (129-204)	1954
	05-06	42.3 (38.9-46.0)	44.1 (41.7-45.9)	64.0 (60.3-67.8)	99.9 (87.2-109)	129 (117-140)	2008
Non-Hispanic whites	03-04	61.1 (57.6-64.9)	60.7 (57.9-64.2)	87.5 (83.0-93.5)	136 (124-149)	172 (157-194)	3044
	05-06	52.5 (48.5-56.9)	50.7 (46.8-55.0)	74.5 (69.9-80.1)	115 (102-129)	147 (134-160)	3110

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 and 05-06 are 4.0 and 0.66, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Serum Cotinine (1999 – 2010)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the ***non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.060 (<LOD-.080)	.240 (.190-.302)	1.02 (.770-1.28)	1.96 (1.60-2.62)	5999
	01-02**	.062 (.050-.077)	< LOD	.160 (.120-.220)	.930 (.740-1.17)	2.20 (1.83-2.44)	6819
	03-04	.071 (.057-.089)	.050 (.040-.070)	.210 (.140-.310)	.990 (.740-1.30)	2.17 (1.81-2.54)	6320
	05-06	.054 (.047-.061)	.040 (.030-.040)	.120 (.100-.150)	.630 (.460-.870)	1.47 (1.15-1.92)	6347
	07-08	.057 (.048-.068)	.040 (.030-.040)	.130 (.100-.180)	.760 (.550-1.09)	1.81 (1.45-2.43)	6197
	09-10	.041 (.037-.046)	.030 (.020-.030)	.070 (.070-.090)	.450 (.350-.580)	1.29 (1.04-1.61)	6678
Age group							
3-11 years	99-00	.164 (.115-.234)	.110 (.066-.188)	.500 (.260-1.16)	1.88 (.997-3.44)	3.44 (1.42-4.79)	1174
	01-02**	.110 (.076-.160)	.070 (<LOD-.130)	.570 (.310-1.00)	2.23 (1.63-2.78)	3.23 (2.53-4.01)	1415
	03-04	.137 (.088-.213)	.120 (.060-.220)	.620 (.310-1.20)	2.04 (1.38-2.94)	3.35 (2.12-4.68)	1252
	05-06	.078 (.062-.097)	.050 (.040-.070)	.220 (.160-.350)	1.22 (.880-1.82)	2.42 (1.63-3.46)	1296
	07-08	.095 (.067-.136)	.060 (.040-.100)	.380 (.170-.840)	1.67 (1.10-2.54)	2.81 (2.26-3.54)	1337
	09-10	.060 (.047-.075)	.040 (.030-.050)	.160 (.110-.250)	.920 (.560-1.58)	2.15 (1.35-3.00)	1355
12-19 years	99-00	.163 (.142-.187)	.110 (.080-.163)	.540 (.428-.660)	1.66 (1.50-1.95)	2.62 (2.09-3.39)	1773
	01-02**	.086 (.059-.126)	.050 (<LOD-.110)	.350 (.190-.580)	1.53 (1.09-2.12)	3.12 (2.47-3.99)	1902
	03-04	.110 (.087-.139)	.080 (.060-.120)	.510 (.350-.670)	1.55 (1.21-1.93)	2.68 (1.96-4.02)	1783
	05-06	.074 (.060-.092)	.050 (.040-.060)	.230 (.150-.350)	1.16 (.860-1.69)	2.26 (1.69-2.72)	1714
	07-08	.081 (.061-.106)	.050 (.030-.070)	.350 (.170-.550)	1.25 (.930-1.99)	2.54 (2.04-2.94)	934
	09-10	.056 (.044-.072)	.030 (.020-.040)	.130 (.080-.230)	.980 (.510-1.80)	2.49 (1.31-3.65)	1042
20 years and older	99-00	*	.050 (<LOD-.061)	.167 (.140-.193)	.630 (.533-.820)	1.50 (1.28-1.66)	3052
	01-02**	.052 (<LOD-.063)	< LOD	.110 (.090-.150)	.630 (.470-.790)	1.42 (1.14-1.89)	3502
	03-04	.058 (.047-.071)	.040 (.030-.050)	.140 (.100-.200)	.630 (.480-.840)	1.54 (1.26-1.92)	3285
	05-06	.047 (.042-.053)	.030 (.030-.040)	.100 (.080-.120)	.440 (.310-.620)	1.14 (.870-1.41)	3337
	07-08	.049 (.043-.057)	.030 (.030-.040)	.100 (.080-.120)	.490 (.390-.640)	1.37 (.970-1.70)	3926
	09-10	.037 (.034-.040)	.020 (.020-.030)	.070 (.060-.070)	.310 (.240-.390)	.990 (.700-1.24)	4281
Gender							
Males	99-00	.124 (.106-.145)	.080 (.060-.110)	.308 (.220-.410)	1.20 (.950-1.49)	2.39 (1.66-3.22)	2789
	01-02**	.075 (.059-.094)	.050 (<LOD-.070)	.230 (.160-.320)	1.17 (.960-1.49)	2.44 (2.23-2.99)	3152
	03-04	.087 (.070-.108)	.060 (.040-.080)	.280 (.190-.360)	1.23 (.910-1.68)	2.63 (2.09-3.19)	2937
	05-06	.064 (.055-.074)	.040 (.040-.050)	.150 (.120-.190)	.720 (.550-1.07)	1.85 (1.42-2.24)	2922
	07-08	.068 (.056-.081)	.040 (.040-.050)	.170 (.120-.240)	1.07 (.690-1.39)	2.52 (1.84-2.92)	2948
	09-10	.046 (.042-.051)	.030 (.030-.030)	.080 (.070-.100)	.550 (.410-.700)	1.60 (1.19-2.38)	3181
Females	99-00	*	< LOD	.180 (.148-.230)	.850 (.600-1.14)	1.85 (1.33-2.45)	3210
	01-02**	.053 (<LOD-.066)	< LOD	.120 (.090-.180)	.710 (.540-.990)	1.77 (1.32-2.20)	3667
	03-04	.060 (.047-.077)	.040 (.030-.060)	.160 (.110-.260)	.860 (.580-1.15)	1.76 (1.32-2.22)	3383
	05-06	.047 (.040-.054)	.030 (.030-.040)	.100 (.070-.130)	.510 (.300-.830)	1.23 (1.04-1.52)	3425
	07-08	.050 (.042-.059)	.030 (.030-.040)	.110 (.080-.150)	.630 (.400-.900)	1.40 (1.09-1.87)	3249
	09-10	.037 (.033-.042)	.020 (.020-.030)	.070 (.050-.080)	.380 (.270-.570)	1.03 (.720-1.61)	3497

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.05, 0.015, 0.015, 0.015, and 0.015, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**In the 2001-2002 survey period, 83% of measurements had an LOD of 0.015 ng/mL, and 17% had an LOD of 0.05 ng/mL.

***Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html

Serum Cotinine (1999 – 2010)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the ***non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	.140 (.110-.180)	.506 (.370-.726)	1.21 (.900-1.70)	2241
	01-02**	.060 (<LOD-.084)	< LOD	.160 (.080-.310)	.730 (.480-1.19)	2.12 (1.19-2.96)	1878
	03-04	.054 (.043-.068)	.030 (.020-.050)	.120 (.080-.180)	.690 (.430-1.00)	2.65 (1.87-3.57)	1707
	05-06	.047 (.038-.059)	.030 (.020-.040)	.100 (.070-.150)	.500 (.370-.730)	1.54 (.830-2.49)	1807
	07-08	.044 (.033-.057)	.030 (.020-.040)	.080 (.060-.120)	.480 (.290-.880)	1.59 (1.00-3.07)	1412
	09-10	.038 (.032-.045)	.020 (.020-.030)	.060 (.050-.080)	.360 (.230-.640)	1.35 (.710-2.25)	1615
Non-Hispanic blacks	99-00	.175 (.153-.201)	.131 (.111-.150)	.505 (.400-.625)	1.43 (1.21-1.75)	2.34 (1.84-3.50)	1333
	01-02**	.164 (.137-.197)	.130 (.110-.160)	.580 (.450-.770)	1.77 (1.55-2.05)	3.15 (2.50-4.30)	1602
	03-04	.144 (.104-.198)	.120 (.080-.180)	.520 (.350-.770)	1.54 (1.20-2.14)	2.77 (2.18-3.54)	1704
	05-06	.114 (.085-.153)	.080 (.060-.120)	.440 (.240-.690)	1.42 (.900-2.03)	2.45 (1.70-3.70)	1630
	07-08	.094 (.079-.112)	.060 (.050-.090)	.320 (.250-.390)	1.19 (.980-1.46)	2.37 (1.75-2.88)	1244
	09-10	.095 (.074-.122)	.070 (.050-.090)	.320 (.210-.540)	1.33 (.900-2.05)	2.85 (1.97-3.60)	1129
Non-Hispanic whites	99-00	*	.050 (<LOD-.073)	.216 (.154-.312)	.950 (.621-1.40)	1.92 (1.48-3.02)	1950
	01-02**	.052 (<LOD-.068)	< LOD	.120 (.090-.180)	.800 (.570-1.11)	1.88 (1.48-2.30)	2847
	03-04	.066 (.050-.087)	.040 (.030-.070)	.180 (.120-.300)	.920 (.620-1.32)	2.01 (1.70-2.49)	2500
	05-06	.049 (.042-.056)	.030 (.030-.040)	.100 (.080-.130)	.530 (.330-.800)	1.27 (.980-1.62)	2404
	07-08	.056 (.043-.073)	.040 (.030-.050)	.130 (.080-.240)	.750 (.440-1.27)	1.70 (1.24-2.54)	2485
	09-10	.037 (.033-.043)	.020 (.020-.030)	.070 (.050-.080)	.350 (.240-.560)	1.06 (.780-1.60)	2743

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.05, 0.015, 0.015, 0.015, and 0.015, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**In the 2001-2002 survey period, 83% of measurements had an LOD of 0.015 ng/mL, and 17% had an LOD of 0.05 ng/mL.

***Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html

Serum Cotinine (2011 – 2014)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the ***non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.020 (.018-.023)	.059 (.049-.072)	.356 (.263-.500)	1.30 (.882-1.60)	6108
	13-14	*	.017 (<LOD-.021)	.057 (.042-.082)	.388 (.246-.605)	1.53 (1.06-1.90)	6561
Age group							
3-11 years	11-12	.058 (.045-.074)	.031 (.024-.045)	.172 (.100-.313)	1.02 (.627-1.94)	2.49 (1.56-3.36)	1348
	13-14	.048 (.036-.065)	.021 (.015-.039)	.128 (.081-.239)	.962 (.471-1.70)	2.15 (1.44-3.33)	1445
12-19 years	11-12	.049 (.040-.061)	.025 (.020-.037)	.147 (.083-.235)	.711 (.520-1.06)	1.47 (1.05-2.29)	990
	13-14	*	.023 (.016-.033)	.129 (.067-.246)	1.14 (.579-2.19)	2.87 (1.90-4.51)	1129
20 years and older	11-12	*	.019 (.016-.020)	.047 (.040-.053)	.210 (.176-.263)	.835 (.566-1.38)	3770
	13-14	*	.016 (<LOD-.019)	.047 (.037-.061)	.244 (.149-.380)	.861 (.605-1.64)	3987
Gender							
Males	11-12	.041 (.037-.045)	.023 (.020-.026)	.076 (.065-.095)	.530 (.397-.715)	1.76 (1.35-2.42)	2903
	13-14	*	.018 (.016-.024)	.068 (.049-.095)	.491 (.341-.743)	1.84 (1.35-2.41)	3063
Females	11-12	*	.019 (.016-.021)	.048 (.040-.059)	.244 (.189-.314)	.819 (.572-1.31)	3205
	13-14	*	.016 (<LOD-.020)	.049 (.036-.075)	.309 (.182-.482)	1.15 (.722-1.71)	3498
Race/ethnicity							
Mexican Americans	11-12	.033 (.027-.042)	.021 (.016-.027)	.055 (.040-.081)	.230 (.106-.386)	.668 (.349-2.07)	886
	13-14	*	.016 (<LOD-.019)	.045 (.034-.056)	.144 (.104-.316)	.550 (.362-1.24)	1261
Non-Hispanic blacks	11-12	.076 (.054-.107)	.045 (.032-.071)	.259 (.127-.513)	1.10 (.678-2.02)	2.86 (1.46-4.20)	1576
	13-14	.086 (.070-.106)	.052 (.041-.073)	.296 (.236-.394)	1.70 (1.26-2.16)	3.17 (2.50-3.97)	1297
Non-Hispanic whites	11-12	*	.017 (<LOD-.020)	.048 (.039-.061)	.277 (.207-.363)	1.10 (.627-1.50)	1841
	13-14	*	< LOD	.044 (.029-.075)	.287 (.137-.602)	1.09 (.687-1.84)	2309
All Hispanics	11-12	.033 (.028-.040)	.021 (.017-.026)	.054 (.041-.074)	.233 (.123-.387)	.834 (.377-2.37)	1587
	13-14	*	.017 (.015-.020)	.048 (.038-.060)	.239 (.140-.378)	.905 (.486-1.78)	1926
Asians	11-12	.030 (.026-.035)	.023 (.020-.027)	.046 (.037-.058)	.123 (.083-.201)	.308 (.201-.594)	878
	13-14	.030 (.026-.036)	.021 (.017-.025)	.052 (.041-.063)	.140 (.091-.250)	.475 (.244-.841)	766

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.015 and 0.015, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

***Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

*Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html

Serum Hydroxycotinine (2013 – 2014)

Metabolite of nicotine (component of tobacco smoke)

Geometric mean and selected percentiles of serum concentrations (in ng/mL) for the ***non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.023 (.018-.032)	.121 (.086-.232)	.553 (.425-.782)	6561
Age group							
3-11 years	13-14	*	< LOD	.044 (.028-.070)	.314 (.161-.531)	.667 (.462-.984)	1445
12-19 years	13-14	*	< LOD	.038 (.020-.073)	.407 (.181-.662)	.848 (.447-1.39)	1129
20 years and older	13-14	*	< LOD	.020 (.016-.025)	.088 (.063-.140)	.437 (.260-.744)	3987
Gender							
Males	13-14	*	< LOD	.024 (.018-.034)	.168 (.099-.286)	.673 (.489-.978)	3063
Females	13-14	*	< LOD	.022 (.017-.030)	.095 (.070-.188)	.447 (.308-.677)	3498
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	.058 (.038-.105)	.224 (.118-.437)	1261
Non-Hispanic blacks	13-14	*	.015 (<LOD-.019)	.085 (.059-.116)	.476 (.314-.612)	.881 (.688-1.10)	1297
Non-Hispanic whites	13-14	*	< LOD	.021 (.015-.033)	.095 (.066-.254)	.588 (.330-.896)	2309
All Hispanics	13-14	*	< LOD	.015 (<LOD-.021)	.083 (.050-.141)	.378 (.192-.498)	1926
Asians	13-14	*	< LOD	.015 (<LOD-.019)	.040 (.032-.051)	.115 (.052-.388)	766

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.015.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

***Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cotinine_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cotinine_FactSheet.html

Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (2007 – 2010)

Metabolite of (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mL) for the **non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	2.80 (2.20-3.70)	11.1 (8.80-14.4)	24.5 (18.0-30.4)	5212
	09-10	*	< LOD	1.90 (1.60-2.40)	7.30 (6.40-8.50)	16.7 (13.9-19.6)	6067
Age group							
6-11 years	07-08	*	1.30 (.600-2.60)	8.50 (4.70-13.8)	31.4 (17.5-49.8)	60.6 (37.1-75.7)	875
	09-10	*	.600 (<LOD-1.00)	3.10 (2.20-5.00)	15.5 (10.4-22.8)	29.3 (18.1-59.4)	937
12-19 years	07-08	*	1.20 (.600-2.10)	5.00 (3.80-9.20)	20.0 (11.9-27.5)	39.1 (20.6-60.9)	843
	09-10	*	.900 (<LOD-1.50)	3.70 (2.70-5.20)	12.5 (6.90-25.5)	29.1 (13.9-51.4)	1004
20 years and older	07-08	*	< LOD	2.10 (1.70-2.50)	8.20 (6.90-9.80)	16.6 (13.9-21.5)	3494
	09-10	*	< LOD	1.60 (1.30-1.90)	6.10 (5.10-6.90)	13.1 (10.7-15.8)	4126
Gender							
Males	07-08	*	< LOD	3.80 (3.00-4.50)	12.6 (10.6-15.0)	27.5 (18.9-38.1)	2463
	09-10	*	< LOD	2.40 (1.90-3.00)	8.30 (7.20-9.90)	19.3 (15.2-22.5)	2903
Females	07-08	*	< LOD	2.10 (1.50-2.90)	9.70 (7.10-13.6)	21.6 (16.6-28.0)	2749
	09-10	*	< LOD	1.60 (1.30-1.90)	6.50 (4.70-8.80)	14.0 (10.7-19.0)	3164
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	2.00 (1.20-3.10)	6.90 (4.90-9.00)	13.9 (10.8-17.3)	1206
	09-10	*	< LOD	1.60 (1.20-2.20)	4.90 (3.70-7.00)	11.1 (5.70-18.4)	1476
Non-Hispanic blacks	07-08	*	.800 (<LOD-1.90)	4.90 (3.60-6.30)	14.0 (11.6-17.2)	26.1 (18.5-33.2)	1057
	09-10	1.81 (1.30-2.54)	1.40 (<LOD-2.40)	5.90 (3.80-8.10)	18.9 (11.7-26.1)	34.0 (18.9-61.9)	1004
Non-Hispanic whites	07-08	*	< LOD	2.80 (1.90-4.10)	11.9 (8.20-17.7)	27.5 (19.6-35.4)	2047
	09-10	*	< LOD	1.80 (1.40-2.40)	6.80 (5.40-8.40)	15.2 (11.9-19.3)	2514

Limit of detection (LOD, see Data Analysis section) for Survey years 07-08 and 09-10 are 0.6 and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html

Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (2011 – 2012)

Metabolite of (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mL) for the **non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.800 (.700-.900)	2.30 (2.00-2.60)	7.40 (6.10-8.90)	15.7 (11.7-21.0)	5486
Age group							
6-11 years	11-12	1.91 (1.57-2.32)	1.30 (1.10-1.70)	5.10 (3.80-7.30)	21.1 (11.5-31.9)	36.7 (20.1-60.2)	955
12-19 years	11-12	1.53 (1.35-1.73)	1.30 (1.10-1.40)	3.10 (2.20-4.30)	10.8 (7.60-14.4)	19.3 (13.2-27.0)	949
20 years and older	11-12	*	.700 (.600-.900)	2.00 (1.80-2.20)	5.70 (4.80-6.80)	11.7 (10.0-14.9)	3582
Gender							
Males	11-12	1.32 (1.23-1.41)	1.00 (.900-1.10)	2.80 (2.40-3.10)	9.80 (7.60-11.2)	19.5 (13.5-26.4)	2616
Females	11-12	*	.700 (.600-.800)	1.90 (1.70-2.20)	5.70 (4.60-7.20)	12.4 (9.00-18.5)	2870
Race/ethnicity							
Mexican Americans	11-12	1.12 (.956-1.30)	.900 (.700-1.20)	1.90 (1.50-2.50)	5.30 (3.70-7.40)	9.50 (7.70-15.0)	775
Non-Hispanic blacks	11-12	1.98 (1.57-2.48)	1.60 (1.30-2.10)	5.10 (3.30-8.70)	15.9 (9.40-28.8)	30.4 (18.5-46.7)	1393
Non-Hispanic whites	11-12	*	.800 (.600-.900)	2.10 (1.80-2.40)	6.70 (5.30-8.50)	14.4 (11.4-20.4)	1679
Asians	11-12	*	.600 (<LOD-.700)	1.20 (1.00-1.50)	2.80 (1.90-3.80)	5.00 (3.40-6.80)	814

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**Non-smoking is defined as a serum cotinine of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html

Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (creatinine corrected) (2007 – 2010)

Metabolite of 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mg of creatinine) for the **non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	2.79 (2.31-3.50)	10.3 (7.36-14.0)	20.5 (16.4-27.5)	5210
	09-10	*	< LOD	2.05 (1.88-2.28)	6.40 (5.71-7.41)	14.6 (11.5-17.3)	6066
Age group							
6-11 years	07-08	*	2.15 (1.38-3.22)	10.7 (5.95-17.9)	38.3 (21.2-57.1)	60.9 (46.4-72.1)	875
	09-10	*	1.19 (<LOD-1.52)	4.25 (2.88-6.37)	19.2 (11.0-28.8)	37.2 (22.9-53.0)	936
12-19 years	07-08	*	1.14 (.710-1.75)	4.40 (2.59-7.36)	14.2 (10.5-23.1)	29.2 (15.6-41.9)	841
	09-10	*	1.05 (<LOD-1.26)	3.08 (1.96-4.37)	10.0 (6.02-15.2)	20.7 (12.3-30.2)	1004
20 years and older	07-08	*	< LOD	2.34 (2.00-2.73)	6.82 (5.49-8.65)	15.1 (11.8-17.7)	3494
	09-10	*	< LOD	1.84 (1.71-2.00)	5.21 (4.57-6.07)	11.4 (8.42-14.1)	4126
Gender							
Males	07-08	*	< LOD	2.98 (2.39-3.71)	10.5 (7.57-12.9)	20.9 (15.7-29.0)	2462
	09-10	*	< LOD	2.00 (1.86-2.25)	6.61 (6.00-7.83)	15.1 (11.7-19.8)	2902
Females	07-08	*	< LOD	2.67 (2.14-3.37)	9.87 (6.79-14.9)	20.0 (15.7-27.9)	2748
	09-10	*	< LOD	2.09 (1.82-2.36)	6.15 (4.88-8.21)	12.7 (9.26-17.3)	3164
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	2.16 (1.55-3.00)	5.91 (4.32-8.30)	13.3 (8.36-17.9)	1205
	09-10	*	< LOD	1.73 (1.36-2.11)	5.00 (3.72-6.84)	10.0 (6.79-14.7)	1476
Non-Hispanic blacks	07-08	*	.960 (<LOD-1.42)	3.70 (2.50-5.31)	11.5 (9.18-14.2)	20.8 (14.5-28.8)	1056
	09-10	1.40 (.982-2.01)	1.21 (<LOD-2.06)	3.96 (2.78-5.99)	12.2 (7.29-20.3)	23.4 (14.3-35.4)	1003
Non-Hispanic whites	07-08	*	< LOD	2.93 (2.22-4.00)	11.4 (7.22-17.1)	23.9 (17.1-32.0)	2047
	09-10	*	< LOD	1.96 (1.82-2.15)	6.09 (5.00-7.83)	14.7 (10.0-18.2)	2514

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**Non-smoking is defined as a serum cotinine concentration of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html

Urinary NNAL (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol) (creatinine corrected) (2011 – 2012)

Metabolite of (4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone) (NNK)

Geometric mean and selected percentiles of urine concentrations (in pg/mg of creatinine) for the **non-smoking U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.06 (1.00-1.14)	2.47 (2.14-2.72)	6.57 (5.24-8.25)	14.3 (11.7-18.4)	5483
Age group							
6-11 years	11-12	2.57 (2.13-3.10)	1.91 (1.60-2.47)	5.93 (4.21-8.49)	23.5 (13.7-31.6)	39.1 (23.5-59.0)	954
12-19 years	11-12	1.45 (1.31-1.60)	1.14 (1.05-1.25)	3.40 (2.50-3.99)	9.14 (5.71-13.4)	18.4 (12.2-22.2)	949
20 years and older	11-12	*	1.00 (.938-1.08)	2.12 (1.91-2.42)	5.00 (4.26-6.18)	10.5 (8.56-13.0)	3580
Gender							
Males	11-12	1.19 (1.10-1.29)	.984 (.909-1.05)	2.38 (2.08-2.68)	7.36 (5.60-9.33)	15.2 (11.5-21.4)	2615
Females	11-12	*	1.18 (1.04-1.30)	2.48 (2.17-2.86)	5.67 (4.69-8.21)	13.5 (10.3-18.0)	2868
Race/ethnicity							
Mexican Americans	11-12	1.15 (.985-1.35)	1.03 (.860-1.22)	1.94 (1.67-2.35)	4.72 (3.51-6.74)	9.93 (6.46-15.9)	775
Non-Hispanic blacks	11-12	1.50 (1.18-1.91)	1.31 (1.02-1.63)	3.70 (2.36-6.09)	11.5 (6.69-19.0)	19.7 (11.5-33.7)	1392
Non-Hispanic whites	11-12	*	1.04 (.984-1.14)	2.47 (2.06-2.79)	5.94 (5.14-7.72)	16.1 (11.5-18.9)	1677
Asians	11-12	*	.972 (<LOD-1.17)	1.82 (1.56-2.24)	3.57 (2.86-4.79)	5.71 (4.29-8.57)	814

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**Non-smoking is defined as a serum cotinine of 10 ng/mL or less.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/NNAL_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/NNAL_FactSheet.html

Blood Bromodichloromethane (2001 – 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.21 (1.65-2.97)	2.30 (1.56-3.21)	4.63 (3.24-6.20)	8.45 (5.86-12.0)	12.0 (7.68-19.2)	785
	03-04	1.50 (1.20-1.86)	1.40 (1.10-1.90)	3.40 (2.60-4.20)	6.20 (5.30-7.00)	9.50 (7.00-12.0)	1322
	05-06	1.41 (1.09-1.83)	1.30 (.880-1.80)	3.00 (2.10-4.40)	6.30 (4.30-9.70)	10.0 (6.80-14.0)	3139
	07-08	1.52 (1.24-1.86)	1.42 (1.05-1.90)	3.13 (2.50-4.20)	6.42 (4.70-8.30)	9.59 (7.05-14.6)	2982
Age group 12-19 years	05-06	1.23 (.954-1.58)	1.00 (.620-1.60)	2.80 (1.70-4.10)	5.50 (4.10-7.20)	8.20 (6.20-12.0)	932
	07-08	1.49 (1.19-1.86)	1.26 (.910-1.88)	3.10 (2.42-4.05)	6.20 (4.13-8.52)	9.02 (6.20-15.0)	482
	20-59 years	2.21 (1.65-2.97)	2.30 (1.56-3.21)	4.63 (3.24-6.20)	8.45 (5.86-12.0)	12.0 (7.68-19.2)	785
		1.50 (1.20-1.86)	1.40 (1.10-1.90)	3.40 (2.60-4.20)	6.20 (5.30-7.00)	9.50 (7.00-12.0)	1322
		1.45 (1.11-1.89)	1.30 (.900-1.90)	3.10 (2.10-4.60)	6.40 (4.30-10.0)	11.0 (6.90-14.0)	1537
60 years and older	07-08	1.60 (1.28-2.01)	1.56 (1.13-2.04)	3.33 (2.61-4.43)	6.90 (4.94-9.29)	11.0 (7.39-15.6)	1607
	05-06	1.43 (.996-2.05)	1.40 (.850-2.00)	3.20 (1.60-5.90)	6.50 (3.20-15.0)	9.70 (5.00-18.0)	670
	07-08	1.28 (1.07-1.53)	1.20 (.870-1.59)	2.60 (1.90-3.41)	4.88 (3.67-6.50)	7.39 (5.70-8.80)	893
Gender							
Males	01-02	2.19 (1.60-3.00)	2.31 (1.63-3.21)	4.64 (3.21-6.08)	7.96 (5.74-15.3)	13.0 (6.93-20.5)	382
	03-04	1.48 (1.18-1.85)	1.40 (.940-2.00)	3.40 (2.60-4.30)	6.60 (5.40-7.20)	11.0 (7.20-14.0)	650
	05-06	1.39 (1.07-1.80)	1.20 (.830-1.70)	3.00 (2.00-4.30)	6.50 (4.30-10.0)	11.0 (6.80-16.0)	1489
	07-08	1.52 (1.24-1.87)	1.50 (1.03-1.95)	3.23 (2.59-4.20)	6.72 (4.80-9.02)	11.0 (7.31-15.9)	1487
Females	01-02	2.24 (1.66-3.01)	2.28 (1.49-3.24)	4.63 (3.09-7.01)	8.62 (5.26-12.9)	11.1 (7.68-25.0)	403
	03-04	1.51 (1.21-1.90)	1.50 (1.10-1.90)	3.30 (2.50-4.20)	6.10 (4.69-7.30)	7.80 (6.40-12.0)	672
	05-06	1.44 (1.10-1.88)	1.30 (.900-1.90)	3.10 (2.10-4.60)	6.20 (4.20-9.40)	9.40 (6.30-13.0)	1650
	07-08	1.51 (1.22-1.87)	1.40 (1.01-1.92)	3.03 (2.42-4.10)	6.20 (4.60-7.82)	8.31 (6.80-12.9)	1495
Race/ethnicity							
Mexican Americans	01-02	3.28 (2.29-4.68)	3.32 (2.19-4.70)	6.81 (3.71-10.4)	10.8 (8.24-14.7)	14.7 (11.1-20.5)	227
	03-04	1.65 (1.15-2.38)	1.60 (.820-2.80)	3.50 (2.60-4.90)	7.30 (4.50-10.0)	10.0 (7.30-11.0)	244
	05-06	1.95 (1.19-3.18)	1.90 (1.00-3.70)	4.40 (2.10-9.10)	9.10 (4.80-17.0)	14.0 (7.50-22.0)	771
	07-08	1.61 (1.27-2.03)	1.57 (1.08-2.20)	3.44 (2.42-4.50)	5.93 (4.70-8.15)	8.90 (6.80-13.2)	574
Non-Hispanic blacks	01-02	2.32 (1.82-2.94)	2.50 (1.56-3.55)	4.57 (3.60-5.56)	8.69 (5.63-9.49)	10.0 (5.89-13.5)	130
	03-04	1.56 (1.15-2.13)	1.70 (1.10-2.20)	2.90 (2.15-3.80)	5.10 (3.80-6.60)	6.60 (4.90-13.0)	290
	05-06	1.74 (1.27-2.37)	1.70 (1.00-2.70)	3.80 (2.70-4.80)	6.40 (4.50-8.90)	8.70 (6.60-11.0)	817
	07-08	1.72 (1.42-2.08)	1.70 (1.30-2.21)	3.29 (2.80-4.01)	5.78 (4.70-7.30)	7.49 (6.03-9.70)	593
Non-Hispanic whites	01-02	2.02 (1.42-2.87)	2.16 (1.36-3.09)	4.34 (2.92-6.01)	7.33 (4.72-15.3)	11.1 (6.01-26.1)	365
	03-04	1.42 (1.11-1.81)	1.30 (.850-1.90)	3.30 (2.30-4.40)	6.20 (5.20-7.20)	9.80 (6.70-13.0)	684
	05-06	1.29 (.989-1.67)	1.10 (.710-1.70)	2.70 (1.80-4.10)	5.80 (4.00-8.60)	9.40 (6.20-14.0)	1318
	07-08	1.45 (1.11-1.87)	1.32 (.917-1.90)	3.03 (2.23-4.30)	6.50 (4.20-9.29)	9.59 (6.30-15.3)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.233, 0.62, 0.62, and 0.62, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Bromodichloromethane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	7.00 (<LOD-8.00)	10.0 (8.00-11.0)	3160
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	9.00 (6.00-10.0)	594
20 years and older	13-14	*	< LOD	< LOD	7.00 (<LOD-9.00)	10.0 (8.00-12.0)	2566
Gender							
Males	13-14	*	< LOD	< LOD	7.00 (<LOD-9.00)	10.0 (8.00-13.0)	1523
Females	13-14	*	< LOD	< LOD	6.00 (<LOD-8.00)	9.00 (7.00-11.0)	1637
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	10.0 (<LOD-14.0)	500
Non-Hispanic blacks	13-14	*	< LOD	< LOD	7.00 (<LOD-10.0)	9.00 (8.00-11.0)	603
Non-Hispanic whites	13-14	*	< LOD	< LOD	7.00 (<LOD-8.00)	9.00 (8.00-11.0)	1288
All Hispanics	13-14	*	< LOD	< LOD	7.00 (<LOD-10.0)	11.0 (8.00-14.0)	798
Asians	13-14	*	< LOD	< LOD	9.00 (<LOD-12.0)	12.0 (9.00-15.0)	361

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 6.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Dibromochloromethane (Chlorodibromomethane) (2001 – 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	.867 (.521-1.44)	.780 (.340-1.90)	2.61 (1.22-4.38)	5.46 (3.53-9.71)	8.96 (5.04-12.9)	781
	03-04	*	< LOD	1.30 (1.00-1.80)	3.60 (2.70-4.80)	7.20 (4.80-8.60)	1333
	05-06	*	< LOD	1.40 (.870-2.40)	4.30 (2.40-7.40)	7.80 (4.60-13.0)	3122
	07-08	*	.775 (<LOD-1.05)	1.90 (1.36-2.73)	4.29 (3.20-6.13)	7.14 (5.54-9.52)	2998
Age group							
12-19 years	05-06	*	< LOD	1.30 (.750-2.50)	4.10 (2.60-5.50)	6.50 (4.10-11.0)	925
	07-08	*	.760 (<LOD-1.06)	2.09 (1.30-3.05)	4.50 (3.09-7.22)	8.32 (5.39-14.4)	484
20-59 years	01-02	.867 (.521-1.44)	.780 (.340-1.90)	2.61 (1.22-4.38)	5.46 (3.53-9.71)	8.96 (5.04-12.9)	781
	03-04	*	< LOD	1.30 (1.00-1.80)	3.60 (2.70-4.80)	7.20 (4.80-8.60)	1333
	05-06	*	< LOD	1.40 (.860-2.30)	4.10 (2.40-7.10)	7.80 (4.20-14.0)	1526
	07-08	*	.846 (<LOD-1.15)	2.07 (1.50-2.92)	4.75 (3.40-6.60)	7.99 (5.80-10.5)	1617
60 years and older	05-06	*	< LOD	1.60 (.780-4.00)	5.10 (1.30-13.0)	7.90 (2.20-20.0)	671
	07-08	*	.630 (<LOD-.874)	1.40 (.918-2.28)	3.40 (2.16-4.63)	4.86 (3.79-5.50)	897
Gender							
Males	01-02	.850 (.481-1.50)	.730 (.300-2.25)	2.66 (.960-4.38)	4.77 (3.33-9.20)	8.06 (4.31-14.6)	371
	03-04	*	< LOD	1.30 (1.00-1.90)	3.70 (2.70-5.70)	7.20 (5.20-8.60)	657
	05-06	*	< LOD	1.40 (.830-2.30)	4.40 (2.30-7.80)	8.30 (4.30-14.0)	1487
	07-08	*	.762 (<LOD-1.10)	2.10 (1.38-2.87)	4.30 (3.30-6.50)	7.50 (5.66-10.5)	1496
Females	01-02	.884 (.550-1.42)	.820 (.340-1.69)	2.54 (1.37-4.31)	6.30 (3.28-10.1)	9.91 (5.02-13.0)	410
	03-04	*	< LOD	1.30 (1.00-1.80)	3.60 (2.50-4.80)	6.60 (3.80-9.20)	676
	05-06	*	< LOD	1.50 (.920-2.50)	4.20 (2.20-7.80)	7.20 (4.10-14.0)	1635
	07-08	*	.776 (<LOD-1.04)	1.80 (1.34-2.62)	4.25 (2.88-6.07)	6.40 (4.91-9.70)	1502
Race/ethnicity							
Mexican Americans	01-02	1.61 (.843-3.06)	1.49 (.670-3.99)	4.59 (1.93-8.89)	9.26 (5.21-12.1)	12.0 (9.63-16.1)	233
	03-04	1.20 (.963-1.50)	1.10 (.810-1.40)	2.30 (1.50-4.10)	5.20 (3.80-6.90)	7.70 (5.20-11.0)	256
	05-06	1.25 (.774-2.02)	.950 (<LOD-1.70)	2.50 (1.00-7.40)	7.40 (2.50-19.0)	13.0 (5.80-21.0)	759
	07-08	1.54 (1.09-2.18)	1.38 (.864-2.10)	3.20 (1.79-5.80)	7.70 (3.35-13.0)	9.81 (7.10-18.2)	574
Non-Hispanic blacks	01-02	1.03 (.505-2.09)	.930 (.530-2.03)	2.03 (.770-7.06)	4.22 (2.01-10.5)	8.09 (2.80-16.5)	128
	03-04	*	< LOD	.970 (.650-1.60)	1.90 (1.20-3.20)	3.20 (1.80-5.20)	288
	05-06	*	.620 (<LOD-.820)	1.30 (1.00-1.90)	3.40 (2.10-4.90)	5.50 (4.10-7.10)	822
	07-08	.979 (.752-1.27)	.811 (<LOD-1.12)	1.60 (1.02-2.70)	3.28 (2.18-5.67)	5.67 (3.05-8.50)	593
Non-Hispanic whites	01-02	.736 (.413-1.31)	.640 (<LOD-1.93)	2.49 (.870-4.27)	4.57 (3.00-7.12)	6.98 (4.27-11.1)	357
	03-04	*	< LOD	1.30 (.950-1.80)	3.30 (2.50-4.60)	6.60 (3.70-9.20)	685
	05-06	*	< LOD	1.30 (.710-2.30)	4.10 (2.30-7.10)	7.70 (4.60-11.0)	1311
	07-08	*	.665 (<LOD-1.02)	1.79 (1.09-2.88)	3.95 (2.60-5.78)	6.03 (4.02-9.80)	1358

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.271, 0.62, 0.62, and 0.62, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Dibromochloromethane (Chlorodibromomethane) (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	7.00 (6.00-10.0)	3195
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	598
20 years and older	13-14	*	< LOD	< LOD	< LOD	7.00 (6.00-10.0)	2597
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	7.00 (5.00-12.0)	1543
Females	13-14	*	< LOD	< LOD	< LOD	7.00 (5.00-9.00)	1652
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	6.00 (<LOD-10.0)	10.0 (7.00-15.0)	505
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	7.00 (<LOD-14.0)	612
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	6.00 (<LOD-8.00)	1301
All Hispanics	13-14	*	< LOD	< LOD	6.00 (<LOD-9.00)	10.0 (7.00-14.0)	809
Asians	13-14	*	< LOD	< LOD	6.00 (<LOD-12.0)	10.0 (7.00-16.0)	363

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 5.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Tribromomethane (Bromoform) (2001 – 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.57 (1.07-2.31)	1.39 (.960-2.02)	2.78 (1.76-4.63)	6.05 (2.92-29.2)	15.5 (3.68-85.4)	774
	03-04	*	< LOD	1.80 (<LOD-2.80)	3.74 (2.30-7.10)	6.40 (3.60-14.0)	1310
	05-06	*	< LOD	1.20 (<LOD-1.60)	2.70 (2.00-4.00)	5.20 (3.10-7.60)	3016
	07-08	*	< LOD	< LOD	2.51 (1.90-3.34)	5.20 (3.54-7.44)	2994
Age group							
12-19 years	05-06	*	< LOD	1.20 (<LOD-1.60)	2.40 (1.70-4.40)	4.80 (2.80-7.10)	892
	07-08	*	< LOD	1.11 (<LOD-1.29)	2.80 (1.90-4.77)	6.69 (3.50-7.88)	484
20-59 years	01-02	1.57 (1.07-2.31)	1.39 (.960-2.02)	2.78 (1.76-4.63)	6.05 (2.92-29.2)	15.5 (3.68-85.4)	774
	03-04	*	< LOD	1.80 (<LOD-2.80)	3.74 (2.30-7.10)	6.40 (3.60-14.0)	1310
	05-06	*	< LOD	1.20 (<LOD-1.60)	2.90 (1.90-4.20)	5.20 (3.10-8.80)	1478
	07-08	*	< LOD	< LOD	2.73 (1.93-3.74)	6.48 (3.74-7.98)	1614
60 years and older	05-06	*	< LOD	1.28 (<LOD-2.10)	2.60 (2.30-3.50)	4.70 (3.00-7.70)	646
	07-08	*	< LOD	< LOD	1.78 (1.33-2.72)	3.24 (2.16-4.91)	896
Gender							
Males	01-02	1.49 (.944-2.34)	1.29 (.850-1.98)	2.65 (1.49-5.05)	6.12 (2.26-33.9)	14.9 (2.79-69.9)	374
	03-04	*	< LOD	1.90 (<LOD-2.87)	4.00 (2.40-6.80)	6.50 (4.00-13.0)	645
	05-06	*	< LOD	1.16 (<LOD-1.60)	2.70 (1.90-4.00)	5.00 (3.10-7.60)	1424
	07-08	*	< LOD	< LOD	2.40 (1.71-3.51)	6.00 (3.23-8.49)	1494
Females	01-02	1.67 (1.17-2.39)	1.46 (1.05-2.21)	2.86 (1.89-4.57)	5.69 (3.30-27.5)	22.2 (5.09-49.6)	400
	03-04	*	< LOD	1.72 (<LOD-2.65)	3.20 (1.93-7.70)	6.10 (3.10-31.0)	665
	05-06	*	< LOD	1.23 (1.00-1.60)	2.70 (1.90-4.20)	5.20 (3.10-8.80)	1592
	07-08	*	< LOD	< LOD	2.57 (1.90-3.40)	4.88 (3.55-7.30)	1500
Race/ethnicity							
Mexican Americans	01-02	2.34 (1.15-4.77)	1.66 (.990-3.38)	4.03 (1.42-36.5)	28.3 (4.39-49.2)	40.8 (31.5-57.9)	234
	03-04	*	1.60 (<LOD-3.10)	3.30 (<LOD-9.40)	7.60 (3.60-14.0)	11.0 (5.60-210)	242
	05-06	*	< LOD	1.60 (1.04-3.20)	4.00 (2.40-5.90)	5.90 (4.30-8.30)	721
	07-08	*	< LOD	2.82 (1.23-6.70)	6.80 (2.93-11.0)	9.54 (6.10-15.7)	574
Non-Hispanic blacks	01-02	1.51 (.857-2.67)	1.47 (.780-3.15)	2.58 (1.39-4.64)	4.34 (2.57-8.48)	6.27 (3.28-15.2)	121
	03-04	*	< LOD	1.60 (<LOD-2.30)	2.50 (1.80-3.20)	3.20 (2.40-6.10)	289
	05-06	*	< LOD	1.10 (<LOD-1.30)	2.00 (1.70-2.40)	3.40 (2.30-4.30)	796
	07-08	*	< LOD	< LOD	1.54 (<LOD-3.54)	3.07 (1.47-7.20)	592
Non-Hispanic whites	01-02	1.47 (.980-2.22)	1.29 (.840-2.06)	2.58 (1.51-4.91)	5.69 (2.84-21.2)	11.0 (3.30-69.9)	362
	03-04	*	< LOD	1.70 (<LOD-2.90)	3.50 (2.00-7.70)	5.90 (3.30-21.0)	680
	05-06	*	< LOD	1.20 (<LOD-1.60)	2.80 (2.00-3.90)	5.40 (3.10-9.90)	1271
	07-08	*	< LOD	< LOD	1.90 (1.33-2.97)	3.51 (1.93-7.81)	1355

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.596, 1.5, 1.0, and 1.0, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Tribromomethane (Bromoform) (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	8.00 (<LOD-10.0)	3158
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	592
20 years and older	13-14	*	< LOD	< LOD	< LOD	8.00 (<LOD-10.0)	2566
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1525
Females	13-14	*	< LOD	< LOD	< LOD	9.00 (<LOD-12.0)	1633
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	11.0 (<LOD-17.0)	503
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	599
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1282
All Hispanics	13-14	*	< LOD	< LOD	< LOD	11.0 (<LOD-14.0)	806
Asians	13-14	*	< LOD	< LOD	< LOD	11.0 (<LOD-12.0)	362

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 8.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Trichloromethane (Chloroform) (2001 – 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	16.6 (13.0-21.1)	16.1 (11.9-22.2)	31.7 (23.9-40.4)	55.5 (44.5-68.6)	72.1 (57.3-105)	744
	03-04	10.2 (8.56-12.2)	10.0 (8.50-13.0)	20.0 (17.0-24.0)	35.0 (29.0-40.0)	50.0 (37.0-65.0)	1222
	05-06	10.1 (9.09-11.3)	9.90 (8.90-11.0)	19.0 (17.0-21.0)	36.0 (31.0-41.0)	54.0 (46.0-64.0)	3111
	07-08	6.63 (5.30-8.30)	6.56 (4.87-8.83)	14.6 (11.0-19.4)	27.7 (22.0-37.0)	41.8 (33.0-54.1)	2754
Age group							
	12-19 years	05-06 9.22 (8.20-10.4)	9.10 (8.10-10.0)	17.0 (14.0-20.0)	33.0 (27.0-40.0)	46.0 (36.0-64.0)	913
		07-08 5.95 (4.69-7.53)	5.33 (3.92-7.98)	12.5 (8.56-19.0)	25.5 (17.6-48.3)	47.6 (26.0-56.8)	440
	20-59 years	01-02 16.6 (13.0-21.1)	16.1 (11.9-22.2)	31.7 (23.9-40.4)	55.5 (44.5-68.6)	72.1 (57.3-105)	744
		03-04 10.2 (8.56-12.2)	10.0 (8.50-13.0)	20.0 (17.0-24.0)	35.0 (29.0-40.0)	50.0 (37.0-65.0)	1222
		05-06 10.5 (9.29-11.8)	10.0 (8.90-12.0)	20.0 (18.0-22.0)	37.0 (31.0-44.0)	55.0 (46.0-71.0)	1529
		07-08 6.89 (5.37-8.83)	6.78 (5.00-9.53)	15.1 (11.2-20.8)	29.0 (23.3-38.3)	42.0 (34.2-55.8)	1503
60 years and older	05-06	9.71 (8.25-11.4)	9.60 (8.20-11.0)	19.0 (14.0-22.0)	35.0 (27.0-40.0)	46.0 (39.0-59.0)	669
	07-08	6.25 (5.24-7.46)	6.34 (4.64-8.30)	14.0 (11.0-17.2)	24.8 (19.5-33.0)	36.0 (25.4-48.6)	811
Gender							
Males	01-02	16.8 (12.0-23.5)	16.1 (11.0-24.8)	34.3 (22.4-48.7)	57.0 (39.9-76.4)	75.2 (54.5-156)	358
	03-04	10.1 (8.43-12.1)	10.0 (7.90-14.0)	20.0 (17.0-25.0)	36.8 (29.0-49.0)	53.0 (36.8-69.0)	599
	05-06	9.94 (8.80-11.2)	9.80 (8.50-11.0)	19.0 (17.0-22.0)	38.0 (33.0-44.0)	54.0 (46.0-67.0)	1483
	07-08	6.54 (5.25-8.14)	6.32 (4.85-8.43)	14.2 (11.0-19.1)	29.0 (21.9-37.6)	41.8 (31.8-59.2)	1376
Females	01-02	16.4 (13.4-20.1)	16.6 (12.0-21.5)	29.2 (24.0-36.5)	53.5 (38.4-68.9)	69.5 (53.3-104)	386
	03-04	10.4 (8.41-12.7)	10.0 (8.40-13.0)	20.0 (16.0-23.9)	33.0 (26.0-40.0)	46.0 (35.0-65.0)	623
	05-06	10.4 (9.24-11.6)	10.0 (9.10-11.0)	19.0 (17.0-21.0)	32.0 (29.0-39.0)	52.0 (41.0-67.0)	1628
	07-08	6.73 (5.29-8.55)	6.73 (4.80-9.35)	15.0 (11.0-19.7)	26.9 (21.5-37.7)	42.0 (31.4-54.0)	1378
Race/ethnicity							
Mexican Americans	01-02	17.0 (10.5-27.6)	14.5 (10.0-32.7)	35.1 (18.6-57.6)	60.7 (41.5-100)	93.0 (49.7-243)	223
	03-04	9.17 (7.45-11.3)	9.30 (7.60-11.0)	19.0 (15.0-24.0)	34.0 (24.0-44.4)	44.4 (30.0-59.0)	225
	05-06	10.3 (8.59-12.5)	10.0 (7.60-14.0)	20.0 (17.0-22.0)	36.0 (30.0-41.0)	47.0 (41.0-64.0)	740
	07-08	5.87 (4.20-8.19)	5.23 (3.50-7.80)	13.0 (7.76-20.0)	30.3 (15.8-49.2)	45.9 (23.4-89.7)	504
Non-Hispanic blacks	01-02	19.1 (12.9-28.1)	20.9 (9.28-37.4)	38.4 (27.7-46.0)	55.9 (45.5-69.8)	68.9 (51.9-74.0)	116
	03-04	11.8 (9.54-14.6)	12.0 (8.90-15.0)	20.0 (15.0-30.0)	35.0 (28.0-59.0)	61.0 (34.0-100)	272
	05-06	11.9 (9.78-14.4)	12.0 (9.10-15.0)	22.0 (19.0-26.0)	39.0 (31.0-47.0)	55.0 (46.0-70.0)	822
	07-08	8.00 (6.22-10.3)	8.60 (6.20-11.0)	15.7 (12.0-20.0)	28.0 (22.3-37.0)	39.6 (34.5-46.6)	585
Non-Hispanic whites	01-02	15.6 (12.0-20.2)	15.2 (11.2-20.5)	26.8 (20.4-39.5)	53.5 (35.3-72.1)	69.5 (53.5-105)	348
	03-04	9.84 (8.09-12.0)	10.0 (8.10-13.0)	20.0 (16.0-23.0)	33.8 (27.0-40.0)	47.0 (35.0-67.0)	630
	05-06	9.87 (8.79-11.1)	9.70 (8.80-11.0)	19.0 (16.0-21.0)	34.0 (29.0-43.0)	53.0 (45.0-67.0)	1318
	07-08	6.45 (4.95-8.40)	6.30 (4.16-9.23)	14.9 (10.1-21.0)	27.7 (21.0-40.0)	41.8 (31.0-58.9)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 2.37, 2.11, 2.1, and 2.1, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Blood Trichloromethane (Chloroform) (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	8.00 (<LOD-10.0)	16.0 (14.0-19.0)	27.0 (24.0-32.0)	40.0 (33.0-50.0)	3136
Age group							
12-19 years	13-14	*	< LOD	14.0 (12.0-18.0)	28.0 (21.0-33.0)	35.0 (28.0-53.0)	588
20 years and older	13-14	*	8.00 (<LOD-10.0)	16.0 (14.0-19.0)	27.0 (25.0-32.0)	41.0 (34.0-50.0)	2548
Gender							
Males	13-14	*	< LOD	16.0 (14.0-19.0)	26.0 (22.0-35.0)	38.0 (31.0-51.0)	1512
Females	13-14	*	9.00 (<LOD-10.0)	16.0 (14.0-19.0)	28.0 (25.0-34.0)	41.0 (33.0-52.0)	1624
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	9.00 (<LOD-14.0)	16.0 (12.0-22.0)	22.0 (16.0-33.0)	503
Non-Hispanic blacks	13-14	*	10.0 (<LOD-14.0)	18.0 (14.0-24.0)	30.0 (23.0-40.0)	40.0 (30.0-65.0)	595
Non-Hispanic whites	13-14	*	9.00 (<LOD-11.0)	17.0 (14.0-20.0)	28.0 (23.0-36.0)	41.0 (32.0-57.0)	1266
All Hispanics	13-14	*	< LOD	12.0 (<LOD-17.0)	23.0 (17.0-29.0)	30.0 (23.0-45.0)	806
Asians	13-14	*	< LOD	14.0 (10.0-20.0)	25.0 (17.0-39.0)	39.0 (27.0-47.0)	361

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 8.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/THM-DBP_BiomonitoringSummary.html

Urinary Benzophenone-3 (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	22.9 (18.1-28.9)	18.1 (15.5-23.2)	94.0 (67.5-123)	370 (225-570)	1040 (698-1390)	2517
	05-06	19.4 (16.5-22.8)	14.1 (12.5-17.5)	68.8 (54.5-87.2)	433 (294-597)	1150 (936-1510)	2548
	07-08	18.3 (13.7-24.3)	14.3 (10.7-19.8)	64.1 (42.8-116)	365 (223-524)	801 (471-2080)	2604
	09-10	22.3 (18.0-27.7)	16.4 (12.7-20.5)	81.2 (55.0-126)	493 (320-742)	1750 (931-3120)	2749
Age group 6-11 years	03-04	21.2 (16.4-27.3)	17.2 (14.9-25.9)	66.7 (38.7-102)	158 (106-246)	246 (154-618)	314
	05-06	21.2 (14.3-31.3)	19.4 (11.7-26.1)	58.8 (40.5-102)	259 (115-433)	852 (355-2200)	356
	07-08	24.1 (15.0-38.7)	17.2 (11.8-25.0)	79.9 (32.9-168)	392 (129-1610)	1410 (165-43600)	389
	09-10	21.7 (15.6-30.2)	14.6 (12.0-19.7)	52.7 (27.2-119)	470 (80.7-1900)	1570 (153-6440)	415
12-19 years	03-04	22.9 (18.0-29.3)	20.1 (16.1-25.1)	67.1 (45.2-93.8)	170 (137-240)	407 (183-717)	715
	05-06	21.2 (15.8-28.4)	14.9 (12.1-21.4)	64.3 (39.7-95.3)	227 (130-382)	633 (252-1260)	702
	07-08	21.5 (16.0-28.8)	15.0 (11.9-21.3)	59.3 (36.7-111)	214 (113-613)	613 (206-1350)	401
	09-10	23.3 (16.6-32.5)	16.6 (13.1-19.7)	62.3 (35.1-129)	423 (184-843)	988 (550-2670)	420
20 years and older	03-04	23.1 (18.0-29.6)	18.1 (14.7-23.3)	109 (72.1-140)	450 (315-733)	1220 (769-1750)	1488
	05-06	19.0 (16.5-21.8)	13.5 (12.0-16.3)	70.9 (55.2-87.2)	543 (390-638)	1200 (954-1690)	1490
	07-08	17.3 (13.0-23.0)	13.7 (10.0-19.5)	64.1 (41.5-117)	371 (240-516)	801 (516-1790)	1814
	09-10	22.3 (17.9-27.7)	16.5 (12.3-22.5)	86.7 (63.1-129)	505 (339-760)	1890 (1240-3170)	1914
Gender Males	03-04	16.8 (13.2-21.3)	13.7 (11.4-16.8)	55.3 (33.2-86.6)	178 (134-324)	567 (238-1350)	1229
	05-06	14.6 (10.8-19.7)	11.8 (8.80-15.9)	43.4 (31.0-68.8)	227 (103-552)	909 (479-1190)	1270
	07-08	11.9 (8.84-16.0)	9.40 (7.70-12.3)	37.6 (22.6-54.7)	172 (79.9-376)	471 (208-1410)	1294
	09-10	15.3 (12.7-18.6)	12.2 (10.0-15.2)	52.8 (33.9-72.6)	223 (129-332)	610 (318-1270)	1399
Females	03-04	30.7 (23.7-39.8)	26.0 (20.2-34.1)	137 (106-172)	596 (403-769)	1340 (776-1790)	1288
	05-06	25.5 (21.7-29.9)	17.9 (14.3-23.1)	129 (82.9-166)	638 (478-900)	1410 (945-2620)	1278
	07-08	27.6 (20.4-37.3)	25.6 (17.5-33.9)	117 (72.6-211)	535 (361-757)	1260 (643-2280)	1310
	09-10	32.0 (23.7-43.3)	23.0 (16.4-29.8)	148 (73.3-260)	1020 (540-1800)	3200 (1760-4400)	1350
Race/ethnicity Mexican Americans	03-04	16.5 (10.9-25.1)	11.9 (8.50-18.3)	45.5 (25.9-78.2)	178 (76.4-412)	412 (178-2180)	613
	05-06	14.3 (10.7-19.1)	10.2 (7.40-14.1)	45.6 (24.1-75.7)	214 (166-313)	635 (337-1090)	637
	07-08	12.1 (9.49-15.3)	9.90 (7.70-12.4)	32.6 (25.0-48.3)	142 (85.0-268)	409 (214-778)	531
	09-10	17.2 (13.7-21.6)	12.5 (10.5-14.5)	41.9 (30.2-57.4)	351 (248-546)	1130 (493-2140)	566
Non-Hispanic blacks	03-04	12.8 (9.38-17.4)	10.2 (7.40-14.4)	34.3 (22.8-50.6)	127 (90.8-176)	247 (143-499)	652
	05-06	12.4 (9.77-15.6)	9.40 (7.30-11.8)	33.0 (22.3-46.5)	208 (115-291)	556 (269-1060)	678
	07-08	8.55 (6.75-10.8)	7.40 (5.00-9.70)	25.5 (17.5-34.5)	117 (66.8-217)	422 (195-786)	597
	09-10	14.0 (10.9-18.1)	8.90 (7.30-10.5)	30.9 (21.9-50.5)	276 (143-437)	705 (320-3000)	516
Non-Hispanic whites	03-04	27.7 (20.3-37.8)	24.4 (16.8-32.0)	121 (83.6-162)	507 (316-769)	1340 (733-2070)	1092
	05-06	21.6 (18.5-25.2)	16.0 (13.5-19.0)	82.4 (64.2-114)	552 (392-754)	1370 (945-2050)	1038
	07-08	23.1 (15.0-35.5)	18.7 (11.0-33.7)	101 (47.4-206)	459 (241-749)	1160 (487-2620)	1077
	09-10	26.1 (19.0-35.9)	21.1 (14.6-29.7)	94.9 (59.8-186)	610 (325-1240)	2130 (934-3820)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.3, 0.4, 0.4, and 0.4 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html

Urinary Benzophenone-3 (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	23.2 (17.2-31.3)	18.7 (13.6-27.0)	83.8 (50.8-142)	461 (290-861)	1200 (861-1610)	2489
	13-14	25.2 (20.4-31.2)	21.0 (16.8-25.3)	87.9 (72.7-102)	417 (269-642)	1210 (853-1760)	2686
Age group							
6-11 years	11-12	18.7 (12.3-28.2)	13.2 (8.20-20.8)	55.4 (28.0-108)	336 (134-653)	657 (236-1270)	396
	13-14	26.0 (16.5-40.9)	19.2 (14.4-30.0)	77.6 (39.0-206)	363 (171-720)	824 (271-1840)	409
12-19 years	11-12	27.8 (15.4-50.2)	21.6 (10.8-42.1)	109 (34.0-255)	433 (159-1160)	1120 (261-1990)	388
	13-14	29.2 (23.3-36.4)	26.2 (19.7-36.4)	87.2 (57.8-137)	261 (167-504)	537 (269-1340)	462
20 years and older	11-12	23.1 (17.8-30.0)	19.2 (14.4-27.0)	83.8 (52.8-137)	482 (305-805)	1250 (975-1640)	1705
	13-14	24.6 (19.7-30.6)	20.1 (16.0-24.7)	90.6 (73.4-102)	482 (294-801)	1360 (875-2740)	1815
Gender							
Males	11-12	17.2 (12.1-24.5)	16.0 (9.40-23.6)	50.2 (40.1-78.7)	295 (141-448)	594 (301-1360)	1259
	13-14	19.0 (15.8-22.9)	16.8 (14.4-19.8)	55.0 (46.4-63.1)	231 (176-259)	576 (340-864)	1285
Females	11-12	31.0 (22.7-42.2)	22.2 (16.0-34.1)	137 (79.9-243)	781 (467-1220)	1720 (1260-2290)	1230
	13-14	32.9 (24.9-43.5)	26.2 (19.4-37.2)	120 (94.9-195)	733 (447-1230)	1950 (1200-3460)	1401
Race/ethnicity							
Mexican Americans	11-12	16.8 (10.5-26.8)	13.4 (7.20-25.2)	46.1 (25.2-115)	305 (111-644)	885 (305-1740)	316
	13-14	25.9 (20.5-32.7)	19.0 (15.0-24.2)	69.3 (44.1-86.6)	256 (204-538)	893 (518-1230)	438
Non-Hispanic blacks	11-12	14.5 (11.4-18.5)	10.9 (8.00-14.1)	41.4 (28.8-59.5)	316 (192-433)	895 (475-1270)	665
	13-14	10.9 (7.48-15.8)	9.60 (6.60-13.1)	26.9 (19.6-39.9)	104 (60.3-205)	448 (118-1070)	609
Non-Hispanic whites	11-12	26.8 (17.8-40.5)	22.2 (14.8-36.5)	101 (52.8-216)	512 (255-1130)	1230 (805-1830)	813
	13-14	29.7 (22.7-38.8)	24.9 (19.5-32.9)	108 (94.0-131)	523 (340-853)	1470 (1150-2860)	988
All Hispanics	11-12	21.2 (15.2-29.4)	16.3 (10.6-22.7)	57.9 (38.2-126)	408 (261-684)	1020 (527-1610)	571
	13-14	28.2 (23.8-33.4)	20.1 (16.5-23.9)	81.5 (64.7-98.3)	415 (219-824)	1120 (738-1780)	690
Asians	11-12	16.7 (10.5-26.5)	11.9 (7.30-21.1)	66.4 (37.6-122)	486 (157-1350)	1640 (770-2780)	352
	13-14	18.6 (12.4-28.0)	17.0 (8.30-26.8)	64.2 (36.1-107)	254 (114-532)	532 (283-1770)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.4 and 0.4, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html

Urinary Benzophenone-3 (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	22.2 (17.6-28.0)	16.2 (12.7-21.6)	82.0 (58.7-108)	415 (283-577)	1080 (686-1600)	2514
	05-06	18.9 (15.8-22.6)	13.5 (11.2-16.8)	60.4 (47.6-81.4)	445 (346-553)	1210 (794-1970)	2548
	07-08	18.4 (13.9-24.4)	13.5 (10.2-17.8)	67.9 (45.2-117)	338 (215-584)	935 (525-1800)	2604
	09-10	23.3 (18.7-29.1)	16.1 (12.8-19.8)	79.1 (52.2-124)	579 (355-1040)	2340 (1380-3010)	2749
Age group							
6-11 years	03-04	25.8 (19.5-34.1)	22.4 (14.4-33.7)	84.6 (41.0-131)	171 (132-365)	427 (171-710)	314
	05-06	23.3 (15.9-34.1)	17.5 (11.6-28.3)	67.7 (39.7-105)	249 (106-631)	868 (264-2080)	356
	07-08	29.7 (19.0-46.6)	19.3 (12.4-32.3)	103 (51.1-159)	442 (133-1550)	1430 (187-29100)	389
	09-10	28.3 (20.4-39.4)	18.8 (14.7-21.1)	53.9 (33.2-132)	565 (104-3410)	1780 (253-8230)	415
12-19 years	03-04	17.2 (13.7-21.5)	12.9 (10.4-16.5)	43.6 (29.5-57.7)	136 (91.7-239)	350 (173-646)	713
	05-06	15.8 (11.6-21.6)	12.1 (9.16-17.0)	42.5 (28.6-58.7)	164 (101-438)	625 (225-956)	702
	07-08	16.7 (12.4-22.4)	12.1 (8.57-17.6)	55.7 (30.4-74.8)	211 (88.2-505)	505 (163-902)	401
	09-10	18.7 (13.4-26.1)	13.6 (10.1-19.7)	39.9 (25.5-91.6)	412 (89.8-750)	1240 (629-2540)	420
20 years and older	03-04	22.8 (17.8-29.1)	16.2 (12.7-21.9)	93.2 (66.0-130)	491 (361-700)	1330 (880-1880)	1487
	05-06	19.0 (16.3-22.2)	13.4 (11.2-16.2)	64.2 (49.3-87.0)	509 (406-628)	1480 (816-2200)	1490
	07-08	17.7 (13.3-23.6)	12.6 (9.93-17.5)	67.7 (44.1-127)	362 (249-584)	960 (581-1970)	1814
	09-10	23.6 (18.8-29.5)	16.3 (12.7-20.2)	83.6 (58.3-146)	602 (364-1230)	2470 (1350-3080)	1914
Gender							
Males	03-04	13.6 (10.8-17.1)	10.3 (8.36-12.9)	40.0 (24.9-62.5)	169 (93.3-316)	381 (229-685)	1228
	05-06	11.7 (8.74-15.8)	9.43 (6.72-12.5)	31.9 (19.7-49.4)	176 (77.1-406)	553 (317-948)	1270
	07-08	10.0 (7.37-13.7)	7.50 (5.74-10.0)	28.7 (18.5-47.3)	142 (65.8-225)	332 (181-960)	1294
	09-10	13.7 (11.4-16.6)	10.7 (8.53-12.7)	44.6 (29.7-57.4)	186 (123-287)	420 (287-1230)	1399
Females	03-04	35.5 (27.1-46.4)	28.2 (20.2-37.0)	144 (101-224)	686 (491-1130)	1850 (1220-2580)	1286
	05-06	30.0 (25.3-35.6)	20.9 (17.0-29.0)	129 (88.0-175)	707 (527-912)	1880 (1150-2770)	1278
	07-08	33.0 (25.0-43.7)	26.2 (19.1-41.1)	156 (90.2-235)	617 (385-935)	1500 (746-2710)	1310
	09-10	38.6 (28.1-53.0)	25.7 (17.5-35.2)	161 (76.3-378)	1580 (955-2410)	3250 (2540-4640)	1350
Race/ethnicity							
Mexican Americans	03-04	15.1 (9.44-24.0)	11.1 (6.95-16.0)	40.7 (18.3-85.8)	158 (87.4-362)	595 (118-1860)	612
	05-06	12.9 (10.2-16.2)	8.63 (6.16-12.5)	32.1 (23.1-51.8)	216 (135-408)	948 (441-1220)	637
	07-08	11.8 (8.87-15.6)	8.97 (7.00-12.4)	33.6 (26.0-43.2)	154 (93.4-249)	413 (217-932)	531
	09-10	17.1 (13.4-21.7)	12.2 (9.64-14.5)	40.4 (26.4-60.3)	288 (155-603)	1310 (441-2180)	566
Non-Hispanic blacks	03-04	8.78 (6.49-11.9)	6.80 (5.27-9.00)	19.7 (13.5-33.4)	79.8 (46.8-139)	185 (79.8-536)	651
	05-06	8.69 (7.02-10.8)	6.29 (5.52-7.78)	21.2 (14.5-34.5)	118 (74.9-245)	448 (208-876)	678
	07-08	6.65 (5.24-8.42)	5.09 (4.15-6.10)	17.8 (13.2-24.2)	86.6 (57.5-122)	297 (113-903)	597
	09-10	10.2 (8.12-12.7)	6.46 (5.40-7.67)	23.1 (15.5-38.2)	160 (79.9-396)	653 (305-1580)	516
Non-Hispanic whites	03-04	28.3 (20.6-38.8)	22.0 (14.6-32.7)	116 (73.5-175)	510 (380-760)	1330 (852-2410)	1091
	05-06	22.7 (19.4-26.7)	16.2 (13.0-19.7)	77.3 (56.5-106)	538 (406-679)	1500 (828-2430)	1038
	07-08	24.1 (15.6-37.2)	18.1 (11.0-30.0)	103 (53.6-198)	494 (227-960)	1170 (522-2710)	1077
	09-10	29.3 (20.7-41.5)	22.1 (14.6-33.1)	99.2 (54.3-241)	767 (412-1550)	2590 (1510-3250)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html

Urinary Benzophenone-3 (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	26.4 (19.3-36.2)	18.8 (13.3-27.3)	102 (57.8-162)	613 (330-1020)	1680 (1010-2500)	2487
	13-14	25.2 (20.5-31.0)	19.8 (15.7-24.7)	79.8 (66.2-103)	467 (299-603)	1190 (847-1810)	2684
Age group							
6-11 years	11-12	26.9 (17.9-40.2)	18.8 (13.0-28.6)	67.8 (37.8-135)	552 (138-1010)	1010 (297-1670)	395
	13-14	32.8 (21.5-50.1)	28.8 (16.7-45.7)	90.0 (46.9-189)	401 (152-868)	868 (432-1700)	409
12-19 years	11-12	27.1 (14.2-51.8)	16.7 (8.69-44.3)	102 (29.9-331)	631 (117-3050)	1720 (331-3900)	388
	13-14	23.7 (17.8-31.4)	21.6 (15.8-28.7)	63.0 (49.1-86.2)	221 (116-440)	506 (221-647)	462
20 years and older	11-12	26.3 (19.8-34.8)	19.8 (13.9-26.6)	107 (68.1-156)	640 (371-957)	1890 (1080-2500)	1704
	13-14	24.7 (20.3-30.0)	18.8 (15.2-23.1)	82.3 (69.5-102)	529 (317-790)	1420 (915-2660)	1813
Gender							
Males	11-12	16.1 (11.3-22.8)	11.9 (8.77-18.1)	48.8 (31.6-84.5)	237 (120-442)	716 (267-1030)	1258
	13-14	15.9 (13.2-19.3)	13.8 (10.9-17.5)	44.0 (33.1-58.5)	181 (146-229)	432 (299-532)	1284
Females	11-12	42.7 (30.6-59.5)	30.1 (19.7-49.4)	186 (107-374)	1150 (771-1910)	2720 (1660-4230)	1229
	13-14	38.9 (29.2-51.8)	29.7 (21.3-39.9)	153 (83.6-242)	905 (603-1250)	2550 (1440-3500)	1400
Race/ethnicity							
Mexican Americans	11-12	18.9 (12.4-29.0)	13.8 (8.75-22.0)	45.3 (23.5-132)	369 (132-820)	1030 (371-2330)	316
	13-14	26.4 (20.2-34.4)	18.2 (15.6-23.2)	59.1 (40.6-82.7)	296 (122-1090)	1180 (473-2130)	438
Non-Hispanic blacks	11-12	11.3 (8.82-14.5)	7.48 (6.04-9.49)	27.6 (18.0-42.1)	269 (159-376)	747 (376-1010)	665
	13-14	8.02 (5.57-11.5)	6.43 (4.68-8.60)	16.9 (11.6-24.7)	93.5 (51.1-204)	332 (144-818)	609
Non-Hispanic whites	11-12	32.6 (21.1-50.4)	25.5 (15.3-41.1)	128 (70.8-248)	793 (334-1320)	1970 (1030-3500)	811
	13-14	31.2 (24.5-39.6)	25.3 (20.1-31.5)	115 (77.3-159)	569 (432-765)	1270 (871-2550)	987
All Hispanics	11-12	23.7 (17.6-32.0)	15.9 (11.4-21.7)	65.0 (38.6-132)	425 (265-916)	1850 (784-2330)	571
	13-14	28.0 (23.2-33.7)	18.8 (16.3-22.5)	66.8 (50.9-84.5)	338 (190-1020)	1380 (974-2740)	690
Asians	11-12	22.3 (14.3-34.9)	14.2 (8.24-27.8)	73.1 (41.6-153)	624 (282-1640)	1860 (641-4410)	352
	13-14	23.1 (16.3-32.8)	20.2 (12.9-34.4)	67.5 (48.4-102)	253 (131-537)	657 (287-1900)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzophenone-3_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzophenone-3_FactSheet.html

Urinary Bisphenol A (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	2.64 (2.38-2.94)	2.80 (2.50-3.10)	5.50 (5.00-6.20)	10.6 (9.40-12.0)	16.0 (14.4-17.2)	2517
	05-06	1.90 (1.79-2.02)	2.00 (1.90-2.00)	3.70 (3.50-3.90)	7.00 (6.40-7.60)	11.5 (10.0-13.6)	2548
	07-08	2.08 (1.92-2.26)	2.10 (1.90-2.30)	4.10 (3.60-4.60)	7.70 (6.80-8.70)	13.0 (10.0-15.6)	2604
	09-10	1.83 (1.72-1.94)	1.90 (1.70-2.00)	3.50 (3.30-3.80)	6.60 (6.00-7.20)	9.60 (8.50-11.3)	2749
Age group 6-11 years	03-04	3.55 (2.95-4.29)	3.80 (2.70-5.00)	6.90 (6.00-8.30)	12.6 (9.50-15.1)	16.0 (11.5-23.3)	314
	05-06	2.86 (2.52-3.24)	2.70 (2.30-2.90)	5.00 (4.40-5.80)	13.5 (9.30-16.8)	22.8 (13.6-34.6)	356
	07-08	2.48 (2.21-2.77)	2.40 (1.90-3.00)	4.50 (3.70-5.50)	7.60 (6.30-9.50)	13.4 (8.80-17.8)	389
	09-10	1.81 (1.55-2.10)	1.70 (1.50-2.00)	3.40 (3.00-4.00)	6.50 (4.30-9.70)	9.20 (6.50-15.1)	415
12-19 years	03-04	3.74 (3.31-4.22)	4.30 (3.60-4.60)	7.80 (6.50-9.00)	13.5 (11.8-15.2)	16.5 (15.2-20.9)	715
	05-06	2.42 (2.18-2.68)	2.40 (2.10-2.70)	4.30 (3.90-5.20)	8.40 (6.50-10.8)	11.9 (10.7-14.8)	702
	07-08	2.45 (2.14-2.80)	2.40 (2.10-2.60)	4.40 (3.60-5.50)	9.70 (7.30-11.9)	12.2 (9.70-19.0)	401
	09-10	2.11 (1.86-2.40)	2.20 (1.90-2.40)	3.80 (3.20-4.50)	6.90 (4.70-10.8)	11.1 (6.90-21.0)	420
20 years and older	03-04	2.41 (2.15-2.72)	2.60 (2.30-2.80)	5.10 (4.50-5.70)	9.50 (8.10-11.3)	15.2 (12.4-18.1)	1488
	05-06	1.75 (1.62-1.89)	1.80 (1.70-2.00)	3.40 (3.10-3.70)	6.40 (5.80-7.50)	10.7 (8.80-12.1)	1490
	07-08	1.99 (1.82-2.18)	2.00 (1.80-2.30)	3.90 (3.40-4.60)	7.40 (6.60-8.50)	13.2 (9.10-15.7)	1814
	09-10	1.79 (1.67-1.93)	1.80 (1.60-2.00)	3.50 (3.30-3.70)	6.50 (6.00-7.20)	9.60 (8.30-11.3)	1914
Gender Males	03-04	2.92 (2.63-3.24)	3.20 (2.70-3.60)	6.10 (5.40-6.60)	10.4 (9.50-11.6)	16.0 (12.7-17.6)	1229
	05-06	2.09 (1.92-2.28)	2.10 (2.00-2.30)	3.70 (3.40-4.20)	7.70 (6.80-9.30)	12.8 (10.1-15.8)	1270
	07-08	2.20 (2.01-2.41)	2.10 (1.90-2.40)	4.00 (3.60-4.70)	8.10 (6.70-9.70)	14.0 (8.70-20.8)	1294
	09-10	1.94 (1.82-2.07)	1.90 (1.70-2.00)	3.70 (3.40-4.10)	6.90 (5.90-7.90)	10.9 (8.40-13.5)	1399
Females	03-04	2.41 (2.11-2.75)	2.50 (2.20-2.80)	5.00 (4.20-6.20)	10.6 (8.70-12.5)	15.9 (13.5-20.1)	1288
	05-06	1.74 (1.55-1.95)	1.80 (1.60-2.00)	3.70 (3.10-4.00)	6.20 (5.80-7.60)	10.4 (7.70-14.7)	1278
	07-08	1.97 (1.80-2.16)	2.00 (1.80-2.20)	4.10 (3.60-4.60)	7.40 (6.80-8.20)	12.0 (9.60-14.1)	1310
	09-10	1.73 (1.60-1.87)	1.80 (1.60-2.00)	3.40 (3.20-3.70)	6.50 (5.60-7.10)	9.20 (8.00-11.2)	1350
Race/ethnicity Mexican Americans	03-04	2.58 (2.15-3.08)	2.60 (2.10-3.20)	5.20 (4.40-6.50)	9.90 (7.30-13.9)	15.4 (10.2-19.7)	613
	05-06	2.05 (1.75-2.40)	2.00 (1.70-2.40)	3.60 (3.00-4.20)	6.90 (5.40-10.1)	12.2 (8.00-15.6)	637
	07-08	2.09 (1.94-2.26)	2.00 (1.80-2.30)	3.80 (3.30-4.30)	7.10 (6.10-8.60)	11.7 (7.70-14.6)	531
	09-10	1.92 (1.69-2.19)	2.10 (1.80-2.30)	3.50 (3.10-4.10)	6.50 (5.20-7.50)	9.00 (6.90-16.2)	566
Non-Hispanic blacks	03-04	4.24 (3.73-4.82)	4.30 (3.80-5.10)	8.20 (7.10-9.80)	14.2 (11.7-16.9)	20.6 (14.9-25.2)	652
	05-06	2.50 (2.25-2.77)	2.70 (2.30-3.00)	4.60 (4.00-5.00)	8.00 (6.80-9.30)	11.3 (8.90-14.2)	678
	07-08	2.66 (2.38-2.97)	2.80 (2.60-3.10)	5.40 (4.40-6.40)	9.10 (7.50-10.4)	13.3 (10.0-15.1)	597
	09-10	2.51 (2.22-2.83)	2.60 (2.30-3.00)	4.40 (3.80-5.00)	7.30 (6.10-8.80)	10.3 (7.90-13.6)	516
Non-Hispanic whites	03-04	2.51 (2.26-2.79)	2.70 (2.50-3.00)	5.20 (4.70-5.80)	9.60 (8.30-10.9)	15.1 (12.6-16.7)	1092
	05-06	1.76 (1.62-1.91)	1.80 (1.60-2.00)	3.50 (3.20-3.80)	6.80 (5.90-7.60)	11.0 (8.80-13.7)	1038
	07-08	2.06 (1.87-2.27)	2.00 (1.80-2.30)	4.00 (3.40-4.70)	7.80 (6.70-8.90)	13.7 (9.80-16.1)	1077
	09-10	1.73 (1.60-1.87)	1.70 (1.60-1.90)	3.40 (3.10-3.70)	6.40 (5.40-7.60)	9.20 (8.20-11.2)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.4, 0.4, 0.4, and 0.4 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html

Urinary Bisphenol A (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.51 (1.41-1.62)	1.40 (1.30-1.60)	3.00 (2.70-3.30)	5.60 (4.90-6.50)	9.40 (7.70-11.2)	2489
	13-14	1.28 (1.20-1.36)	1.30 (1.20-1.40)	2.50 (2.40-2.70)	4.90 (4.10-5.60)	7.70 (6.80-8.30)	2686
Age group							
6-11 years	11-12	1.58 (1.41-1.78)	1.50 (1.30-1.70)	3.10 (2.60-3.50)	6.70 (5.10-8.00)	8.70 (6.20-21.4)	396
	13-14	1.43 (1.30-1.59)	1.40 (1.30-1.60)	2.90 (2.30-3.40)	4.40 (4.10-5.20)	8.00 (5.20-10.2)	409
12-19 years	11-12	1.69 (1.42-2.00)	1.70 (1.30-2.10)	3.30 (2.80-4.00)	6.90 (4.80-7.90)	10.0 (7.10-13.0)	388
	13-14	1.28 (1.16-1.41)	1.20 (1.10-1.40)	2.40 (1.90-2.70)	4.60 (3.30-5.20)	6.80 (5.20-8.10)	462
20 years and older	11-12	1.48 (1.35-1.61)	1.40 (1.20-1.60)	2.90 (2.50-3.30)	5.40 (4.70-6.30)	9.30 (7.30-12.2)	1705
	13-14	1.26 (1.18-1.35)	1.30 (1.20-1.40)	2.50 (2.40-2.80)	4.90 (4.10-6.00)	7.80 (6.80-8.60)	1815
Gender							
Males	11-12	1.64 (1.49-1.81)	1.50 (1.40-1.70)	3.20 (2.70-3.70)	6.00 (5.00-7.70)	9.50 (7.80-11.2)	1259
	13-14	1.43 (1.30-1.58)	1.40 (1.30-1.60)	2.80 (2.40-3.20)	5.30 (4.30-6.60)	8.30 (6.80-10.3)	1285
Females	11-12	1.39 (1.25-1.55)	1.30 (1.20-1.50)	2.80 (2.40-3.20)	5.20 (4.30-6.30)	8.50 (6.50-13.4)	1230
	13-14	1.15 (1.05-1.26)	1.20 (1.10-1.30)	2.30 (2.00-2.60)	4.20 (3.80-5.20)	7.20 (5.60-8.10)	1401
Race/ethnicity							
Mexican Americans	11-12	1.45 (1.30-1.63)	1.40 (1.20-1.60)	2.80 (2.30-3.10)	5.00 (4.20-6.50)	7.70 (5.90-9.70)	316
	13-14	1.28 (1.06-1.53)	1.30 (1.00-1.70)	2.50 (2.10-2.80)	4.10 (3.50-4.90)	5.60 (4.60-7.30)	438
Non-Hispanic blacks	11-12	2.12 (1.88-2.38)	2.00 (1.80-2.40)	4.10 (3.40-4.60)	7.10 (5.70-8.10)	11.4 (8.10-14.3)	665
	13-14	1.83 (1.62-2.07)	1.90 (1.50-2.20)	3.60 (3.20-4.10)	6.80 (5.70-7.80)	9.80 (7.70-12.9)	609
Non-Hispanic whites	11-12	1.46 (1.34-1.58)	1.30 (1.20-1.50)	2.90 (2.50-3.20)	5.40 (4.60-6.60)	8.90 (6.90-13.4)	813
	13-14	1.22 (1.13-1.31)	1.30 (1.10-1.40)	2.40 (2.20-2.70)	4.40 (3.90-5.90)	7.40 (6.40-8.30)	988
All Hispanics	11-12	1.48 (1.25-1.74)	1.40 (1.20-1.70)	2.80 (2.20-3.40)	5.70 (4.20-7.30)	9.10 (6.50-14.1)	571
	13-14	1.31 (1.18-1.46)	1.30 (1.10-1.50)	2.60 (2.20-2.80)	4.10 (3.70-4.70)	6.10 (4.90-7.50)	690
Asians	11-12	1.03 (.863-1.23)	.900 (.800-1.10)	1.80 (1.50-2.20)	4.00 (2.40-6.40)	7.30 (3.90-11.9)	352
	13-14	.782 (.646-.948)	.800 (.700-.900)	1.40 (1.00-1.80)	2.40 (1.80-3.30)	3.60 (2.40-12.1)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.4 and 0.2, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html

Urinary Bisphenol A (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	2.58 (2.36-2.82)	2.50 (2.31-2.80)	4.29 (3.88-4.75)	7.67 (6.62-8.66)	11.2 (9.78-12.4)	2514
	05-06	1.86 (1.79-1.92)	1.71 (1.64-1.79)	3.01 (2.86-3.20)	5.73 (5.29-6.36)	9.70 (8.31-10.9)	2548
	07-08	2.10 (1.95-2.25)	1.95 (1.84-2.03)	3.45 (3.02-3.83)	6.09 (5.10-7.45)	10.0 (7.48-13.2)	2604
	09-10	1.91 (1.79-2.04)	1.76 (1.67-1.84)	3.06 (2.80-3.33)	5.33 (4.68-6.06)	8.03 (6.94-10.0)	2749
Age group							
6-11 years	03-04	4.32 (3.63-5.14)	4.29 (3.63-5.23)	7.14 (5.83-9.56)	12.2 (9.84-14.8)	15.7 (12.2-23.2)	314
	05-06	3.14 (2.79-3.54)	2.80 (2.55-3.06)	5.04 (4.46-5.71)	15.6 (8.15-22.4)	24.6 (19.9-48.5)	356
	07-08	3.05 (2.73-3.41)	2.69 (2.38-3.12)	5.06 (4.33-5.60)	11.9 (6.30-17.4)	20.8 (12.7-26.3)	389
	09-10	2.36 (2.09-2.65)	2.18 (2.00-2.53)	3.70 (3.14-4.29)	5.97 (4.57-9.15)	9.57 (6.52-13.7)	415
12-19 years	03-04	2.80 (2.52-3.11)	2.74 (2.35-3.22)	4.74 (4.21-5.09)	7.79 (6.41-8.87)	11.8 (8.05-14.2)	713
	05-06	1.80 (1.67-1.95)	1.65 (1.50-1.76)	2.73 (2.41-2.98)	5.71 (4.07-7.50)	8.52 (6.94-12.2)	702
	07-08	1.90 (1.72-2.10)	1.69 (1.50-2.00)	2.94 (2.38-3.60)	5.10 (4.17-6.82)	7.72 (5.32-13.9)	401
	09-10	1.70 (1.47-1.95)	1.60 (1.34-1.88)	2.63 (2.11-3.58)	4.47 (3.76-6.19)	6.71 (4.40-17.8)	420
20 years and older	03-04	2.39 (2.17-2.64)	2.36 (2.15-2.59)	3.93 (3.44-4.33)	6.64 (5.97-7.74)	10.0 (9.01-11.4)	1487
	05-06	1.75 (1.67-1.84)	1.64 (1.56-1.75)	2.84 (2.67-3.08)	5.38 (4.89-5.87)	8.54 (7.58-9.77)	1490
	07-08	2.04 (1.90-2.20)	1.92 (1.79-2.03)	3.36 (2.91-3.78)	6.02 (4.88-7.48)	9.32 (7.48-12.1)	1814
	09-10	1.90 (1.76-2.05)	1.76 (1.66-1.84)	3.04 (2.76-3.24)	5.33 (4.67-6.11)	8.00 (6.97-10.0)	1914
Gender							
Males	03-04	2.38 (2.15-2.63)	2.31 (2.08-2.70)	4.19 (3.81-4.64)	7.10 (6.41-8.28)	9.94 (9.06-11.7)	1228
	05-06	1.68 (1.57-1.80)	1.56 (1.45-1.64)	2.73 (2.43-3.14)	5.27 (4.64-6.04)	8.40 (6.81-11.4)	1270
	07-08	1.85 (1.71-2.01)	1.77 (1.57-1.91)	2.97 (2.59-3.33)	5.41 (4.47-7.51)	9.52 (6.29-13.4)	1294
	09-10	1.74 (1.62-1.87)	1.60 (1.48-1.72)	2.76 (2.53-2.96)	5.00 (4.16-5.86)	7.50 (6.22-9.00)	1399
Females	03-04	2.78 (2.50-3.08)	2.68 (2.40-2.94)	4.41 (3.81-5.15)	7.93 (6.48-10.2)	12.4 (9.29-18.2)	1286
	05-06	2.04 (1.95-2.14)	1.85 (1.76-2.02)	3.21 (2.98-3.39)	6.47 (5.51-7.50)	9.86 (8.62-11.8)	1278
	07-08	2.36 (2.17-2.57)	2.14 (1.98-2.33)	3.77 (3.43-4.31)	6.67 (5.41-7.83)	10.5 (7.45-15.2)	1310
	09-10	2.09 (1.92-2.27)	1.93 (1.80-2.15)	3.33 (2.94-3.84)	5.49 (4.87-6.74)	8.80 (6.47-12.5)	1350
Race/ethnicity							
Mexican Americans	03-04	2.34 (2.02-2.71)	2.38 (2.00-2.65)	3.85 (3.24-4.55)	7.09 (5.00-9.04)	10.9 (8.50-14.3)	612
	05-06	1.84 (1.66-2.04)	1.62 (1.45-1.84)	2.99 (2.56-3.60)	6.00 (4.51-8.00)	10.3 (6.84-14.9)	637
	07-08	2.04 (1.86-2.24)	1.88 (1.72-2.11)	3.33 (2.96-3.95)	5.68 (5.05-6.59)	8.90 (6.30-11.8)	531
	09-10	1.91 (1.71-2.13)	1.76 (1.67-1.87)	3.13 (2.63-3.57)	5.51 (4.72-6.97)	8.71 (5.86-14.4)	566
Non-Hispanic blacks	03-04	2.92 (2.58-3.32)	2.95 (2.51-3.27)	4.90 (4.07-6.13)	8.64 (7.53-9.63)	11.9 (10.2-13.3)	651
	05-06	1.76 (1.62-1.90)	1.68 (1.53-1.92)	2.82 (2.67-3.04)	4.56 (3.85-5.43)	6.81 (5.00-9.27)	678
	07-08	2.06 (1.91-2.23)	2.03 (1.83-2.25)	3.24 (2.86-3.78)	5.71 (5.15-6.54)	8.59 (6.54-10.9)	597
	09-10	1.82 (1.65-2.01)	1.70 (1.56-1.89)	2.90 (2.39-3.17)	4.94 (4.02-6.03)	6.74 (5.95-8.09)	516
Non-Hispanic whites	03-04	2.58 (2.37-2.81)	2.55 (2.32-2.80)	4.30 (3.93-4.67)	7.58 (6.32-8.87)	11.0 (9.34-12.4)	1091
	05-06	1.85 (1.75-1.96)	1.70 (1.60-1.82)	3.08 (2.78-3.31)	5.80 (5.13-6.72)	9.77 (7.87-11.5)	1038
	07-08	2.15 (1.97-2.35)	1.97 (1.84-2.11)	3.50 (3.04-3.95)	6.44 (5.04-8.00)	10.9 (7.47-14.5)	1077
	09-10	1.94 (1.79-2.10)	1.78 (1.67-1.92)	3.16 (2.80-3.59)	5.45 (4.67-6.94)	8.55 (6.73-10.0)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html

Urinary Bisphenol A (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.72 (1.61-1.84)	1.58 (1.46-1.71)	2.86 (2.62-3.01)	4.62 (4.12-5.65)	8.24 (6.47-11.0)	2487
	13-14	1.28 (1.18-1.39)	1.21 (1.11-1.32)	2.12 (1.92-2.33)	3.88 (3.46-4.24)	5.09 (4.65-5.96)	2684
Age group							
6-11 years	11-12	2.27 (1.97-2.62)	2.00 (1.78-2.16)	3.33 (2.93-3.75)	7.94 (4.71-12.4)	14.0 (6.45-47.5)	395
	13-14	1.81 (1.68-1.96)	1.80 (1.52-2.03)	3.10 (2.63-3.46)	4.48 (4.00-4.96)	7.03 (5.00-9.92)	409
12-19 years	11-12	1.64 (1.44-1.87)	1.48 (1.13-1.98)	2.88 (2.21-3.23)	4.50 (3.37-8.16)	8.74 (3.57-18.4)	388
	13-14	1.04 (.887-1.21)	.932 (.809-1.19)	1.71 (1.33-2.03)	2.69 (2.28-3.33)	3.99 (3.29-4.67)	462
20 years and older	11-12	1.68 (1.57-1.80)	1.55 (1.43-1.68)	2.75 (2.54-3.00)	4.55 (4.00-5.39)	7.73 (5.73-10.0)	1704
	13-14	1.27 (1.16-1.39)	1.21 (1.11-1.30)	2.09 (1.90-2.31)	3.88 (3.33-4.37)	5.09 (4.58-5.97)	1813
Gender							
Males	11-12	1.54 (1.40-1.69)	1.37 (1.20-1.59)	2.55 (2.21-2.94)	4.38 (3.75-6.00)	8.24 (6.01-11.0)	1258
	13-14	1.20 (1.11-1.31)	1.12 (.988-1.25)	1.95 (1.78-2.24)	3.75 (3.25-4.29)	4.91 (4.42-7.02)	1284
Females	11-12	1.91 (1.76-2.08)	1.75 (1.57-1.97)	2.93 (2.73-3.24)	4.94 (4.27-6.24)	8.13 (6.00-11.1)	1229
	13-14	1.36 (1.23-1.51)	1.28 (1.17-1.43)	2.25 (2.03-2.48)	3.94 (3.27-4.48)	5.18 (4.50-6.07)	1400
Race/ethnicity							
Mexican Americans	11-12	1.64 (1.49-1.80)	1.46 (1.32-1.64)	2.70 (2.34-3.01)	4.50 (3.45-7.00)	7.37 (4.76-11.4)	316
	13-14	1.30 (1.16-1.45)	1.27 (1.05-1.57)	2.25 (1.97-2.50)	3.57 (3.04-3.98)	4.25 (3.93-4.83)	438
Non-Hispanic blacks	11-12	1.65 (1.48-1.84)	1.50 (1.30-1.71)	2.63 (2.11-3.17)	4.82 (3.82-6.24)	7.23 (5.98-10.7)	665
	13-14	1.35 (1.25-1.46)	1.32 (1.13-1.46)	2.17 (1.96-2.35)	3.89 (3.24-4.27)	5.00 (4.40-6.01)	609
Non-Hispanic whites	11-12	1.77 (1.64-1.92)	1.64 (1.49-1.78)	2.90 (2.65-3.08)	4.60 (4.05-6.00)	9.00 (6.11-12.3)	811
	13-14	1.28 (1.14-1.44)	1.21 (1.06-1.38)	2.13 (1.85-2.42)	3.94 (3.33-4.56)	5.60 (4.65-6.53)	987
All Hispanics	11-12	1.66 (1.44-1.90)	1.47 (1.28-1.70)	2.80 (2.39-3.14)	4.82 (3.67-7.00)	7.69 (5.76-9.62)	571
	13-14	1.30 (1.19-1.43)	1.25 (1.09-1.42)	2.20 (1.92-2.47)	3.61 (3.13-3.98)	4.54 (4.03-4.89)	690
Asians	11-12	1.38 (1.25-1.52)	1.32 (1.16-1.40)	2.11 (1.84-2.50)	4.04 (2.80-6.25)	7.42 (4.38-12.1)	352
	13-14	.990 (.847-1.16)	.918 (.778-1.05)	1.62 (1.39-1.97)	2.71 (2.09-4.00)	4.44 (2.71-10.0)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BisphenolA_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html

Urinary Bisphenol F (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.532 (.460-.616)	.400 (.300-.500)	1.10 (.900-1.40)	4.00 (2.80-5.30)	9.80 (6.50-16.1)	2682
Age group							
6-11 years	13-14	.421 (.343-.516)	.300 (.200-.400)	.900 (.600-1.30)	2.30 (1.50-3.30)	3.90 (3.00-6.10)	409
12-19 years	13-14	.567 (.458-.701)	.400 (.300-.600)	1.20 (1.00-1.50)	5.30 (2.50-8.40)	8.80 (6.50-18.7)	461
20 years and older	13-14	.541 (.457-.641)	.400 (.300-.500)	1.20 (.900-1.50)	4.20 (2.60-6.30)	12.2 (6.00-21.4)	1812
Gender							
Males	13-14	.582 (.505-.671)	.400 (.400-.500)	1.20 (1.10-1.40)	5.10 (3.00-6.50)	12.4 (7.00-17.7)	1284
Females	13-14	.489 (.401-.596)	.300 (.300-.500)	1.00 (.700-1.50)	3.30 (2.40-4.60)	8.90 (4.50-21.4)	1398
Race/ethnicity							
Mexican Americans	13-14	*	.300 (<LOD-.400)	.600 (.400-1.10)	1.90 (1.00-5.10)	5.30 (1.90-14.9)	438
Non-Hispanic blacks	13-14	.607 (.540-.683)	.400 (.400-.500)	1.30 (1.10-1.70)	5.40 (3.50-8.90)	14.6 (8.10-26.4)	608
Non-Hispanic whites	13-14	.581 (.473-.713)	.400 (.300-.600)	1.30 (1.00-1.60)	4.30 (2.70-6.50)	12.4 (5.70-24.1)	987
All Hispanics	13-14	*	.300 (.200-.400)	.700 (.500-1.10)	2.50 (1.40-5.90)	8.20 (4.10-18.0)	690
Asians	13-14	*	< LOD	.400 (.300-.700)	1.10 (.600-2.00)	2.10 (1.10-7.00)	287

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.2.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Bisphenol F (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.534 (.471-.606)	.444 (.385-.515)	1.07 (.899-1.21)	3.33 (2.39-4.76)	8.39 (5.90-12.0)	2680
Age group							
6-11 years	13-14	.532 (.431-.656)	.452 (.360-.636)	1.19 (.798-1.74)	2.44 (1.91-3.49)	4.76 (3.48-10.0)	409
12-19 years	13-14	.460 (.365-.580)	.388 (.287-.474)	1.06 (.680-1.46)	3.23 (1.85-5.17)	8.80 (3.31-14.4)	461
20 years and older	13-14	.546 (.479-.622)	.464 (.395-.526)	1.06 (.875-1.21)	3.40 (2.29-5.03)	8.75 (5.70-13.8)	1810
Gender							
Males	13-14	.489 (.426-.563)	.398 (.311-.492)	.994 (.783-1.16)	3.98 (2.63-5.17)	9.47 (6.81-13.8)	1283
Females	13-14	.581 (.497-.678)	.494 (.421-.583)	1.11 (.896-1.40)	3.09 (2.11-4.10)	6.97 (3.89-14.1)	1397
Race/ethnicity							
Mexican Americans	13-14	*	.308 (<LOD-.400)	.667 (.497-.875)	1.75 (.995-3.61)	4.22 (2.02-6.73)	438
Non-Hispanic blacks	13-14	.449 (.392-.515)	.350 (.304-.389)	.980 (.758-1.27)	3.24 (2.37-4.67)	8.28 (4.67-12.1)	608
Non-Hispanic whites	13-14	.611 (.515-.726)	.517 (.424-.612)	1.14 (.994-1.43)	3.89 (2.63-6.50)	10.8 (5.90-15.3)	986
All Hispanics	13-14	*	.308 (.255-.395)	.698 (.526-.933)	2.02 (1.41-4.05)	5.56 (3.00-16.0)	690
Asians	13-14	*	< LOD	.672 (.492-.843)	1.31 (.843-2.90)	2.00 (1.17-7.78)	286

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Bisphenol S (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.427 (.375-.487)	.400 (.300-.500)	.900 (.700-1.10)	2.10 (1.70-2.40)	3.60 (2.50-4.70)	2682
Age group							
6-11 years	13-14	.351 (.306-.404)	.300 (.300-.400)	.700 (.500-.800)	1.40 (1.00-1.60)	2.10 (1.50-4.90)	409
12-19 years	13-14	.400 (.332-.482)	.400 (.300-.500)	.800 (.600-1.10)	1.80 (1.20-2.40)	3.20 (1.80-8.30)	461
20 years and older	13-14	.441 (.381-.510)	.400 (.400-.500)	.900 (.800-1.10)	2.10 (1.80-2.50)	3.80 (2.60-4.60)	1812
Gender							
Males	13-14	.455 (.393-.527)	.400 (.400-.500)	.900 (.700-1.10)	2.30 (1.60-2.60)	3.90 (2.40-6.40)	1284
Females	13-14	.403 (.343-.473)	.400 (.300-.500)	.900 (.700-1.10)	2.00 (1.50-2.30)	3.40 (2.40-4.60)	1398
Race/ethnicity							
Mexican Americans	13-14	.498 (.381-.650)	.500 (.400-.600)	1.00 (.800-1.40)	2.10 (1.60-4.30)	4.90 (2.20-10.8)	438
Non-Hispanic blacks	13-14	.636 (.537-.754)	.600 (.500-.700)	1.40 (1.20-1.70)	3.20 (2.10-4.80)	6.00 (3.50-9.50)	608
Non-Hispanic whites	13-14	.383 (.334-.440)	.400 (.300-.400)	.800 (.600-.900)	1.90 (1.40-2.40)	3.00 (2.40-4.00)	987
All Hispanics	13-14	.507 (.424-.606)	.500 (.400-.600)	1.00 (.800-1.30)	2.10 (1.70-3.30)	4.10 (2.60-6.40)	690
Asians	13-14	.327 (.270-.397)	.300 (.300-.300)	.600 (.500-.900)	1.40 (1.00-2.70)	2.80 (1.60-6.50)	287

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Urinary Bisphenol S (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.428 (.387-.474)	.380 (.352-.411)	.797 (.690-.903)	1.80 (1.49-2.10)	3.33 (2.60-4.68)	2680
Age group							
6-11 years	13-14	.444 (.390-.505)	.405 (.345-.457)	.778 (.652-.938)	1.59 (1.14-2.27)	2.63 (2.05-4.93)	409
12-19 years	13-14	.325 (.287-.368)	.294 (.256-.331)	.588 (.500-.674)	1.31 (.886-1.88)	2.27 (1.33-4.58)	461
20 years and older	13-14	.444 (.396-.498)	.389 (.357-.426)	.839 (.714-.960)	1.88 (1.56-2.22)	3.49 (2.71-4.91)	1810
Gender							
Males	13-14	.383 (.335-.437)	.333 (.299-.370)	.741 (.630-.851)	1.56 (1.33-1.93)	2.81 (1.88-4.76)	1283
Females	13-14	.477 (.431-.529)	.417 (.385-.455)	.848 (.729-.986)	2.03 (1.67-2.60)	3.64 (2.97-5.20)	1397
Race/ethnicity							
Mexican Americans	13-14	.507 (.410-.627)	.458 (.370-.549)	.962 (.722-1.25)	2.22 (1.30-5.42)	5.57 (2.26-14.9)	438
Non-Hispanic blacks	13-14	.471 (.398-.557)	.414 (.336-.519)	.943 (.792-1.11)	2.10 (1.50-3.67)	4.11 (2.58-6.69)	608
Non-Hispanic whites	13-14	.402 (.354-.457)	.357 (.316-.390)	.714 (.596-.864)	1.68 (1.38-1.95)	3.02 (2.20-4.58)	986
All Hispanics	13-14	.503 (.435-.581)	.487 (.411-.538)	.909 (.756-1.09)	2.03 (1.53-2.78)	3.90 (2.80-5.75)	690
Asians	13-14	.420 (.359-.492)	.389 (.357-.459)	.720 (.546-.938)	1.68 (.964-2.76)	2.76 (1.75-8.04)	286

Urinary 4-tert-Octylphenol (2005 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	2548
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	2604
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	2749
Age group							
6-11 years	05-06	*	< LOD	< LOD	< LOD	.300 (.200-.300)	356
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.400)	389
	09-10	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.300-.600)	415
12-19 years	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.400)	702
	07-08	*	< LOD	< LOD	< LOD	.300 (<LOD-.400)	401
	09-10	*	< LOD	< LOD	.300 (.200-.300)	.300 (.300-.400)	420
20 years and older	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1490
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1914
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1270
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.400)	1294
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	1399
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	1310
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.400)	1350
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	.300 (<LOD-.800)	637
	07-08	*	< LOD	< LOD	< LOD	.300 (.200-.300)	531
	09-10	*	< LOD	< LOD	< LOD	.300 (<LOD-.500)	566
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.400)	678
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.500)	597
	09-10	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.600)	516
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	1038
	07-08	*	< LOD	< LOD	< LOD	.200 (.200-.300)	1077
	09-10	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.300-.400)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡The 2003-2004 data were removed due to potential for contamination that may have occurred during sampling. Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Octylphenol_BiomonitoringSummary.html

Urinary 4-tert-Octylphenol (creatinine corrected) (2005 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	.560 (<LOD-.620)	2548
	07-08	*	< LOD	< LOD	< LOD	.670 (.560-.880)	2604
	09-10	*	< LOD	< LOD	.470 (<LOD-.500)	.640 (.580-.680)	2749
Age group							
6-11 years	05-06	*	< LOD	< LOD	< LOD	.410 (.350-.610)	356
	07-08	*	< LOD	< LOD	.440 (<LOD-.540)	.600 (.420-.930)	389
	09-10	*	< LOD	< LOD	.560 (<LOD-.670)	.740 (.640-.830)	415
12-19 years	05-06	*	< LOD	< LOD	< LOD	.450 (<LOD-.560)	702
	07-08	*	< LOD	< LOD	< LOD	.420 (<LOD-.540)	401
	09-10	*	< LOD	< LOD	.360 (.270-.440)	.450 (.340-.560)	420
20 years and older	05-06	*	< LOD	< LOD	< LOD	.580 (<LOD-.670)	1490
	07-08	*	< LOD	< LOD	< LOD	.700 (.580-.930)	1814
	09-10	*	< LOD	< LOD	< LOD	.640 (.580-.700)	1914
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	.390 (<LOD-.440)	1270
	07-08	*	< LOD	< LOD	< LOD	.510 (.390-.600)	1294
	09-10	*	< LOD	< LOD	.380 (<LOD-.420)	.480 (.450-.610)	1399
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	.880 (.670-1.08)	1310
	09-10	*	< LOD	< LOD	.540 (<LOD-.580)	.700 (.640-.880)	1350
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	.480 (<LOD-.740)	637
	07-08	*	< LOD	< LOD	< LOD	.520 (.440-.610)	531
	09-10	*	< LOD	< LOD	< LOD	.560 (<LOD-.750)	566
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	.320 (<LOD-.400)	678
	07-08	*	< LOD	< LOD	.320 (<LOD-.410)	.460 (.340-.610)	597
	09-10	*	< LOD	< LOD	.300 (.250-.330)	.440 (.320-.560)	516
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	.610 (<LOD-.670)	1038
	07-08	*	< LOD	< LOD	< LOD	.700 (.560-.930)	1077
	09-10	*	< LOD	< LOD	.500 (<LOD-.560)	.670 (.580-.740)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡The 2003-2004 data were removed due to potential for contamination that may have occurred during sampling. Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Octylphenol_BiomonitoringSummary.html

Urinary Triclocarban (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.200 (.200-.200)	2.20 (1.20-4.10)	13.4 (8.00-24.5)	2686
Age group							
6-11 years	13-14	*	< LOD	< LOD	.300 (.200-.500)	.900 (.400-5.50)	409
12-19 years	13-14	*	< LOD	.200 (.100-.200)	.900 (.400-1.90)	2.60 (1.40-9.40)	462
20 years and older	13-14	*	< LOD	.200 (.200-.300)	3.40 (1.80-7.00)	17.9 (10.0-30.8)	1815
Gender							
Males	13-14	*	< LOD	.200 (.200-.400)	3.50 (1.60-9.90)	31.9 (13.9-47.6)	1285
Females	13-14	*	< LOD	.200 (.100-.200)	1.70 (.600-3.50)	7.50 (3.50-12.9)	1401
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	.100 (<LOD-.200)	.600 (.200-3.30)	3.30 (.400-16.3)	438
Non-Hispanic blacks	13-14	.397 (.295-.536)	.200 (.100-.300)	1.10 (.700-2.00)	11.3 (6.00-17.9)	27.0 (11.7-67.9)	609
Non-Hispanic whites	13-14	*	< LOD	.200 (.100-.200)	2.00 (.800-4.50)	14.8 (7.10-32.5)	988
All Hispanics	13-14	*	< LOD	.100 (<LOD-.200)	.600 (.300-2.10)	4.40 (1.10-9.40)	690
Asians	13-14	*	< LOD	.100 (<LOD-.100)	.500 (.200-1.40)	2.20 (.800-7.80)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Triclocarban (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.275 (.248-.306)	1.96 (1.00-4.17)	14.6 (8.93-21.3)	2684
Age group							
6-11 years	13-14	*	< LOD	< LOD	.413 (.323-.725)	.778 (.389-7.77)	409
12-19 years	13-14	*	< LOD	.200 (.146-.248)	.559 (.380-.888)	1.97 (.769-8.70)	462
20 years and older	13-14	*	< LOD	.292 (.261-.333)	3.20 (1.67-7.07)	17.6 (10.7-22.9)	1813
Gender							
Males	13-14	*	< LOD	.250 (.185-.306)	3.00 (1.07-9.86)	21.3 (13.7-28.3)	1284
Females	13-14	*	< LOD	.292 (.250-.357)	1.65 (.700-4.17)	9.33 (4.17-14.9)	1400
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	.200 (<LOD-.292)	.559 (.292-1.35)	1.35 (.444-21.5)	438
Non-Hispanic blacks	13-14	.293 (.220-.391)	.172 (.127-.235)	.741 (.513-1.11)	7.90 (2.41-19.3)	23.9 (10.8-28.9)	609
Non-Hispanic whites	13-14	*	< LOD	.278 (.233-.333)	2.06 (.800-7.12)	15.4 (9.87-22.6)	987
All Hispanics	13-14	*	< LOD	.192 (<LOD-.233)	.617 (.351-1.35)	4.48 (1.24-10.6)	690
Asians	13-14	*	< LOD	.217 (<LOD-.250)	.625 (.379-1.67)	3.06 (.769-12.1)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Triclosan (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	13.0 (11.6-14.6)	9.20 (7.90-10.9)	47.4 (38.2-58.4)	249 (188-304)	461 (383-522)	2517
	05-06	18.5 (16.1-21.3)	15.1 (11.8-18.5)	76.2 (57.9-97.6)	334 (279-402)	655 (573-739)	2548
	07-08	15.3 (13.5-17.4)	12.1 (10.2-13.8)	57.2 (46.1-65.9)	225 (176-288)	494 (371-615)	2604
	09-10	14.5 (12.6-16.6)	10.7 (8.80-12.6)	51.2 (39.4-67.7)	238 (200-284)	483 (398-569)	2749
Age group							
6-11 years	03-04	8.16 (6.20-10.8)	6.00 (4.00-8.50)	20.7 (14.3-31.6)	123 (36.4-163)	157 (113-380)	314
	05-06	12.8 (9.89-16.7)	10.3 (8.30-17.2)	35.4 (23.9-65.8)	97.6 (67.4-181)	246 (99.5-462)	356
	07-08	11.8 (7.57-18.2)	9.80 (6.70-13.9)	27.7 (14.8-52.2)	98.5 (40.5-364)	296 (67.4-826)	389
	09-10	10.9 (9.35-12.8)	9.90 (7.10-11.9)	28.3 (22.1-35.5)	95.5 (71.5-117)	200 (114-474)	415
12-19 years	03-04	14.5 (11.0-19.1)	10.3 (8.20-13.1)	39.0 (26.5-86.4)	304 (134-566)	655 (310-890)	715
	05-06	18.8 (14.9-23.8)	15.4 (11.0-21.0)	67.5 (45.3-100)	330 (174-461)	566 (389-707)	702
	07-08	18.2 (13.8-23.8)	13.8 (9.40-20.1)	63.2 (38.7-110)	296 (144-395)	401 (308-853)	401
	09-10	11.7 (9.89-13.8)	8.80 (7.30-10.9)	30.2 (24.3-40.6)	165 (56.7-289)	301 (220-431)	420
20 years and older	03-04	13.6 (12.0-15.3)	9.60 (8.20-11.5)	51.7 (39.6-65.7)	261 (198-317)	472 (406-522)	1488
	05-06	19.3 (16.4-22.6)	15.5 (11.8-19.4)	84.3 (61.0-114)	366 (289-462)	738 (583-864)	1490
	07-08	15.4 (13.7-17.3)	12.3 (10.1-14.4)	60.1 (48.5-69.0)	225 (185-286)	504 (378-573)	1814
	09-10	15.5 (12.9-18.5)	11.1 (8.60-14.2)	61.8 (41.8-86.0)	262 (214-327)	544 (415-621)	1914
Gender							
Males	03-04	16.2 (13.4-19.6)	11.7 (9.30-14.8)	84.9 (50.6-111)	317 (231-433)	574 (461-716)	1229
	05-06	21.3 (17.6-25.7)	17.6 (11.9-23.2)	103 (69.9-143)	446 (366-488)	738 (601-873)	1270
	07-08	15.2 (12.9-17.9)	12.3 (9.50-15.3)	60.6 (45.8-72.8)	236 (159-338)	467 (367-636)	1294
	09-10	14.8 (12.7-17.4)	10.9 (8.60-13.3)	55.1 (40.4-77.5)	243 (214-295)	455 (327-600)	1399
Females	03-04	10.6 (9.29-12.1)	7.60 (6.10-9.10)	33.2 (27.1-39.4)	144 (96.5-250)	380 (258-430)	1288
	05-06	16.2 (13.9-18.8)	12.6 (10.1-15.6)	58.7 (41.5-81.9)	226 (169-304)	513 (310-773)	1278
	07-08	15.5 (12.6-18.9)	12.0 (9.90-14.1)	52.1 (37.1-74.4)	210 (133-367)	504 (285-648)	1310
	09-10	14.2 (12.0-16.8)	10.5 (8.70-12.6)	50.0 (34.4-63.8)	235 (149-302)	488 (332-661)	1350
Race/ethnicity							
Mexican Americans	03-04	14.6 (10.6-20.1)	8.80 (5.40-17.5)	65.4 (32.8-127)	357 (225-456)	597 (372-992)	613
	05-06	26.7 (21.2-33.7)	18.7 (13.5-25.5)	196 (99.4-269)	668 (475-759)	866 (750-1180)	637
	07-08	17.1 (12.9-22.6)	11.8 (8.40-17.8)	67.4 (42.5-106)	358 (208-474)	556 (363-856)	531
	09-10	14.9 (12.2-18.3)	10.2 (8.20-12.8)	54.7 (33.3-86.5)	345 (260-494)	691 (443-1180)	566
Non-Hispanic blacks	03-04	14.4 (11.4-18.2)	11.1 (8.70-16.1)	37.6 (30.2-58.0)	203 (87.5-341)	450 (254-750)	652
	05-06	17.3 (13.3-22.4)	14.0 (10.4-19.0)	59.2 (37.7-98.3)	258 (138-460)	541 (273-1190)	678
	07-08	13.7 (11.7-16.1)	11.3 (8.80-13.9)	41.4 (28.9-49.6)	150 (93.5-265)	480 (190-757)	597
	09-10	12.8 (10.8-15.0)	9.30 (7.70-11.7)	34.3 (24.0-44.6)	168 (88.4-263)	451 (202-959)	516
Non-Hispanic whites	03-04	12.9 (11.2-14.9)	9.20 (7.40-11.0)	49.2 (37.8-63.4)	245 (163-334)	461 (383-527)	1092
	05-06	17.5 (14.9-20.6)	15.1 (10.9-19.0)	74.3 (54.1-90.3)	288 (231-366)	569 (462-693)	1038
	07-08	15.0 (12.6-17.7)	12.3 (9.80-14.5)	59.6 (41.9-73.4)	197 (147-266)	408 (296-537)	1077
	09-10	14.0 (11.8-16.7)	10.5 (8.30-12.9)	51.7 (33.1-79.2)	216 (174-266)	431 (301-565)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 2.3, 2.3, 2.3, and 2.3 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html

Urinary Triclosan (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	11.8 (10.6-13.1)	7.10 (6.10-7.90)	41.6 (30.2-59.5)	267 (207-332)	553 (429-722)	2489
	13-14	9.78 (9.01-10.6)	6.30 (5.70-7.20)	33.9 (29.1-39.1)	172 (138-208)	379 (324-431)	2686
Age group							
6-11 years	11-12	7.18 (5.73-9.01)	5.00 (3.40-7.30)	17.2 (10.4-21.8)	77.6 (28.9-184)	184 (78.7-393)	396
	13-14	8.24 (6.70-10.1)	6.10 (4.80-8.00)	22.9 (15.3-33.5)	73.8 (52.7-96.0)	124 (91.2-204)	409
12-19 years	11-12	10.1 (7.70-13.3)	5.80 (4.70-7.50)	25.5 (15.1-38.9)	156 (73.5-286)	489 (171-1550)	388
	13-14	7.96 (6.81-9.31)	6.00 (4.80-7.40)	19.7 (15.4-25.3)	85.7 (37.2-183)	224 (122-325)	462
20 years and older	11-12	12.7 (11.2-14.4)	7.60 (6.40-8.50)	57.4 (37.0-75.8)	298 (243-388)	594 (437-845)	1705
	13-14	10.3 (9.32-11.3)	6.40 (5.60-7.50)	39.3 (32.4-48.5)	203 (147-270)	420 (350-529)	1815
Gender							
Males	11-12	11.6 (10.1-13.1)	6.40 (5.30-7.50)	41.6 (28.1-58.7)	320 (211-388)	566 (392-722)	1259
	13-14	9.95 (8.75-11.3)	6.40 (5.20-8.50)	34.7 (29.3-40.6)	172 (126-215)	372 (297-479)	1285
Females	11-12	12.0 (10.2-14.0)	7.60 (6.20-8.60)	42.2 (25.7-75.8)	242 (188-286)	545 (380-855)	1230
	13-14	9.63 (8.41-11.0)	6.20 (5.60-7.10)	31.7 (24.9-42.5)	173 (112-240)	384 (302-528)	1401
Race/ethnicity							
Mexican Americans	11-12	12.6 (8.98-17.8)	7.20 (4.70-11.7)	47.6 (21.9-82.7)	411 (151-628)	628 (393-1250)	316
	13-14	8.65 (5.55-13.5)	5.20 (2.60-12.2)	31.9 (15.4-68.0)	191 (79.5-346)	488 (180-822)	438
Non-Hispanic blacks	11-12	10.5 (9.08-12.2)	6.70 (5.70-8.40)	29.9 (22.4-40.0)	169 (106-278)	475 (278-718)	665
	13-14	8.34 (7.54-9.23)	5.50 (4.40-6.60)	24.9 (18.9-32.6)	145 (68.6-209)	304 (204-509)	609
Non-Hispanic whites	11-12	11.7 (10.0-13.7)	7.00 (5.60-8.00)	44.6 (24.4-75.8)	248 (184-392)	552 (365-759)	813
	13-14	10.0 (8.95-11.3)	6.40 (5.60-8.00)	34.7 (29.2-43.1)	148 (122-210)	350 (253-438)	988
All Hispanics	11-12	13.4 (11.6-15.5)	7.50 (6.40-9.30)	48.3 (33.2-75.5)	411 (264-518)	861 (536-1040)	571
	13-14	9.14 (6.95-12.0)	6.00 (3.70-9.50)	29.6 (17.9-44.3)	208 (131-325)	583 (325-737)	690
Asians	11-12	11.7 (7.75-17.8)	7.30 (3.80-15.1)	42.9 (18.6-125)	274 (117-433)	453 (235-636)	352
	13-14	11.5 (9.24-14.3)	6.20 (4.30-9.10)	71.5 (25.2-121)	294 (212-428)	594 (384-740)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 2.3 and 1.7, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html

Urinary Triclosan (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	12.7 (11.5-14.1)	9.48 (8.22-10.4)	43.9 (33.8-60.6)	212 (172-241)	368 (294-463)	2514
	05-06	18.0 (16.0-20.3)	13.0 (11.5-16.1)	73.2 (57.3-91.6)	304 (240-364)	532 (434-674)	2548
	07-08	15.5 (13.7-17.5)	12.4 (10.6-14.2)	50.4 (40.2-59.8)	233 (171-300)	443 (330-559)	2604
	09-10	15.1 (13.2-17.4)	10.9 (9.41-12.4)	49.4 (37.0-67.3)	256 (191-322)	454 (352-557)	2749
Age group							
6-11 years	03-04	9.93 (7.43-13.3)	7.55 (4.72-13.4)	25.1 (15.3-35.6)	116 (39.9-236)	236 (115-336)	314
	05-06	14.1 (10.8-18.5)	13.5 (7.97-18.5)	38.6 (26.0-54.1)	108 (62.4-169)	241 (108-598)	356
	07-08	14.5 (9.47-22.1)	13.0 (8.00-17.5)	33.1 (17.5-72.4)	132 (52.7-331)	331 (131-599)	389
	09-10	14.2 (12.4-16.4)	12.0 (8.84-15.0)	37.1 (27.0-47.3)	129 (89.1-155)	300 (148-469)	415
12-19 years	03-04	10.9 (8.32-14.2)	7.45 (5.48-10.7)	31.8 (21.9-61.1)	193 (90.7-318)	356 (169-580)	713
	05-06	14.0 (11.0-17.8)	11.1 (8.68-13.6)	51.0 (33.0-73.4)	193 (125-306)	385 (203-739)	702
	07-08	14.1 (11.0-18.1)	11.0 (7.87-14.4)	50.2 (27.1-78.8)	206 (95.3-293)	378 (238-571)	401
	09-10	9.38 (7.86-11.2)	7.71 (5.71-9.21)	23.2 (17.3-29.3)	153 (63.0-201)	247 (166-379)	420
20 years and older	03-04	13.4 (12.0-15.1)	10.0 (8.89-11.4)	50.0 (36.0-73.8)	224 (186-272)	385 (308-506)	1487
	05-06	19.3 (16.9-22.0)	13.7 (11.6-17.0)	86.1 (64.0-109)	343 (262-411)	581 (440-718)	1490
	07-08	15.8 (14.0-17.8)	12.6 (10.7-14.5)	52.3 (43.8-64.6)	244 (186-309)	484 (336-568)	1814
	09-10	16.4 (13.7-19.6)	11.5 (9.63-14.8)	57.1 (38.4-80.2)	279 (202-364)	504 (372-601)	1914
Gender							
Males	03-04	13.2 (11.3-15.6)	9.21 (6.86-12.1)	73.1 (45.8-85.9)	237 (175-294)	384 (294-506)	1228
	05-06	17.1 (14.1-20.7)	12.4 (10.0-18.5)	82.6 (58.2-109)	308 (232-368)	472 (355-721)	1270
	07-08	12.8 (10.9-15.0)	10.0 (8.12-13.0)	45.7 (32.1-57.3)	191 (132-241)	330 (253-456)	1294
	09-10	13.3 (11.3-15.7)	9.21 (7.40-11.7)	43.9 (33.5-67.4)	230 (178-276)	345 (276-429)	1399
Females	03-04	12.2 (10.6-14.2)	9.54 (8.45-10.4)	32.3 (26.2-46.6)	182 (138-217)	336 (225-480)	1286
	05-06	19.0 (16.1-22.6)	13.8 (11.7-16.7)	64.0 (47.6-89.8)	301 (209-434)	619 (418-898)	1278
	07-08	18.5 (15.6-22.0)	14.4 (12.4-16.8)	55.3 (38.5-77.0)	300 (182-435)	571 (359-729)	1310
	09-10	17.1 (14.6-20.1)	12.3 (10.7-14.8)	50.6 (37.0-71.3)	300 (187-422)	556 (422-668)	1350
Race/ethnicity							
Mexican Americans	03-04	13.3 (9.38-18.8)	9.18 (5.45-13.9)	66.7 (28.8-112)	292 (151-432)	453 (263-1150)	612
	05-06	24.1 (19.3-29.9)	17.6 (13.3-22.8)	154 (96.4-242)	440 (379-601)	736 (601-818)	637
	07-08	16.6 (12.2-22.6)	12.6 (8.51-16.5)	60.1 (39.6-80.3)	325 (182-475)	637 (368-828)	531
	09-10	14.8 (12.1-18.2)	9.38 (7.63-12.4)	45.4 (32.2-110)	352 (244-458)	578 (402-737)	566
Non-Hispanic blacks	03-04	9.94 (7.92-12.5)	7.74 (5.50-10.0)	30.2 (25.6-37.3)	132 (78.0-213)	260 (127-513)	651
	05-06	12.2 (9.47-15.6)	9.50 (7.64-11.8)	41.0 (23.3-77.4)	179 (106-243)	352 (203-674)	678
	07-08	10.6 (8.91-12.7)	8.34 (6.47-10.1)	28.6 (22.3-36.7)	120 (71.0-203)	266 (151-407)	597
	09-10	9.23 (7.62-11.2)	6.62 (5.63-8.18)	22.7 (16.9-29.1)	136 (63.6-240)	356 (180-689)	516
Non-Hispanic whites	03-04	13.3 (11.6-15.1)	9.82 (8.11-11.5)	47.0 (34.3-67.7)	213 (160-272)	358 (276-480)	1091
	05-06	18.4 (16.0-21.2)	13.5 (11.6-17.0)	73.4 (56.8-97.0)	282 (231-343)	472 (367-699)	1038
	07-08	15.6 (13.1-18.7)	13.0 (10.7-14.8)	50.4 (35.9-65.9)	222 (129-303)	418 (262-586)	1077
	09-10	15.8 (13.1-19.0)	11.4 (9.41-14.8)	52.0 (37.0-71.3)	242 (159-323)	410 (317-547)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html

Urinary Triclosan (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	13.4 (11.8-15.1)	8.39 (6.79-10.0)	49.3 (37.4-57.5)	309 (229-404)	642 (508-788)	2487
	13-14	9.83 (9.00-10.7)	6.90 (6.27-7.65)	29.9 (25.1-34.4)	173 (138-207)	358 (292-425)	2684
Age group							
6-11 years	11-12	10.3 (8.18-12.9)	6.70 (5.62-9.06)	22.4 (16.3-31.7)	103 (54.5-153)	235 (113-333)	395
	13-14	10.4 (8.61-12.6)	8.97 (6.62-11.5)	23.4 (18.4-36.1)	78.1 (57.0-125)	184 (81.2-268)	409
12-19 years	11-12	9.84 (7.85-12.4)	5.83 (4.95-7.23)	26.3 (19.0-37.8)	182 (65.0-399)	421 (182-647)	388
	13-14	6.46 (5.24-7.96)	5.11 (4.39-5.93)	15.7 (10.0-21.8)	53.6 (33.2-105)	153 (102-289)	462
20 years and older	11-12	14.4 (12.4-16.7)	9.06 (7.41-11.2)	54.3 (43.9-75.0)	364 (246-514)	660 (536-817)	1704
	13-14	10.4 (9.44-11.4)	7.17 (6.32-8.26)	34.4 (29.3-41.6)	202 (162-234)	408 (296-531)	1813
Gender							
Males	11-12	10.8 (9.49-12.2)	6.40 (5.24-8.53)	37.4 (26.8-49.4)	226 (153-309)	536 (311-656)	1258
	13-14	8.36 (7.44-9.41)	5.74 (4.80-6.67)	26.7 (22.6-31.8)	143 (111-195)	296 (216-426)	1284
Females	11-12	16.5 (13.8-19.6)	10.8 (8.44-12.7)	53.3 (44.2-75.0)	381 (273-539)	746 (614-900)	1229
	13-14	11.5 (10.0-13.1)	8.08 (6.70-9.23)	34.4 (25.1-42.2)	205 (150-253)	419 (294-573)	1400
Race/ethnicity							
Mexican Americans	11-12	14.2 (10.4-19.5)	8.29 (6.10-12.4)	62.5 (31.8-111)	399 (163-536)	536 (271-900)	316
	13-14	8.82 (5.50-14.1)	6.08 (3.08-13.4)	25.5 (15.9-61.3)	147 (68.8-340)	425 (142-659)	438
Non-Hispanic blacks	11-12	8.18 (7.09-9.44)	5.52 (4.66-6.27)	21.5 (16.7-29.9)	130 (74.3-222)	365 (229-461)	665
	13-14	6.16 (5.30-7.15)	4.27 (3.52-4.93)	16.7 (12.7-21.3)	107 (66.1-125)	218 (116-284)	609
Non-Hispanic whites	11-12	14.2 (12.1-16.7)	8.95 (6.79-11.7)	51.9 (39.1-69.1)	311 (180-569)	675 (508-817)	811
	13-14	10.6 (9.78-11.5)	7.78 (6.67-9.09)	33.0 (26.4-40.2)	178 (128-215)	339 (247-420)	987
All Hispanics	11-12	15.0 (13.0-17.3)	8.58 (6.52-11.4)	70.8 (40.8-98.6)	449 (320-514)	647 (506-913)	571
	13-14	9.07 (6.64-12.4)	6.08 (3.75-11.0)	24.7 (17.0-55.6)	197 (114-322)	462 (322-619)	690
Asians	11-12	15.7 (10.2-24.2)	10.5 (6.05-17.4)	51.8 (23.6-142)	333 (127-609)	575 (381-719)	352
	13-14	14.6 (11.5-18.6)	8.00 (5.74-13.3)	100 (39.3-151)	406 (247-528)	659 (419-917)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Triclosan_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Triclosan_FactSheet.html

Urinary Butyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	1.30 (.800-1.80)	6.60 (4.80-10.7)	19.6 (16.4-26.7)	2548
	07-08	*	< LOD	1.10 (.900-1.50)	9.00 (6.20-11.4)	20.9 (15.2-30.1)	2604
	09-10	*	< LOD	.600 (.500-.800)	5.10 (3.40-8.10)	17.1 (10.5-29.4)	2749
Age group							
6-11 years	05-06	*	< LOD	.400 (.200-.600)	1.90 (.800-5.80)	7.50 (1.70-18.5)	356
	07-08	*	< LOD	.300 (.200-.500)	1.30 (.900-1.70)	3.80 (1.00-114)	389
	09-10	*	< LOD	.300 (<LOD-.400)	.900 (.500-1.70)	2.20 (1.30-5.10)	415
12-19 years	05-06	*	.200 (<LOD-.400)	.900 (.600-1.80)	9.60 (4.10-16.1)	24.6 (14.5-33.4)	702
	07-08	*	< LOD	.800 (.600-1.40)	6.20 (2.50-11.5)	15.8 (6.20-33.2)	401
	09-10	*	< LOD	.500 (.400-.900)	5.70 (1.40-15.7)	18.6 (5.70-39.0)	420
20 years and older	05-06	*	< LOD	1.70 (1.00-2.20)	6.80 (4.80-11.7)	20.5 (15.8-28.3)	1490
	07-08	*	< LOD	1.50 (1.00-1.90)	9.80 (6.70-13.4)	24.6 (16.5-32.0)	1814
	09-10	*	< LOD	.700 (.500-1.00)	6.00 (3.70-10.0)	18.7 (11.9-35.1)	1914
Gender							
Males	05-06	*	< LOD	.300 (<LOD-.300)	1.10 (.600-2.00)	3.20 (1.90-5.50)	1270
	07-08	*	< LOD	.200 (.200-.300)	1.00 (.700-1.50)	3.60 (2.00-7.20)	1294
	09-10	*	< LOD	< LOD	.800 (.500-1.20)	2.70 (1.50-12.0)	1399
Females	05-06	.904 (.760-1.07)	.500 (.400-.700)	3.70 (2.90-4.80)	17.4 (11.7-20.8)	34.9 (28.2-41.1)	1278
	07-08	.926 (.825-1.04)	.500 (.400-.700)	3.90 (3.00-4.70)	17.9 (12.1-20.5)	34.8 (25.2-52.1)	1310
	09-10	*	.300 (.200-.400)	1.80 (1.30-2.30)	11.3 (6.60-18.8)	31.8 (17.7-49.4)	1350
Race/ethnicity							
Mexican Americans	05-06	*	.200 (<LOD-.300)	1.10 (.700-2.30)	11.3 (6.40-15.6)	27.3 (16.5-35.9)	637
	07-08	*	< LOD	.900 (.500-1.30)	6.80 (3.50-13.2)	22.7 (13.2-30.7)	531
	09-10	*	< LOD	.900 (.400-1.30)	8.30 (4.50-13.8)	18.8 (13.8-35.1)	566
Non-Hispanic blacks	05-06	*	.300 (.200-.400)	2.10 (1.00-3.50)	9.10 (4.40-25.0)	31.8 (10.1-82.6)	678
	07-08	*	.200 (<LOD-.300)	1.10 (.700-1.70)	7.10 (4.20-9.90)	20.0 (8.90-31.3)	597
	09-10	*	< LOD	.500 (.300-.900)	3.10 (1.40-7.30)	9.00 (5.60-16.7)	516
Non-Hispanic whites	05-06	*	< LOD	1.00 (.700-1.80)	5.80 (4.00-9.00)	17.7 (11.7-25.9)	1038
	07-08	*	< LOD	1.20 (.800-1.60)	9.10 (5.00-13.3)	19.6 (12.1-32.0)	1077
	09-10	*	< LOD	.700 (.500-.900)	4.90 (2.70-9.20)	17.7 (9.20-34.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Butyl paraben (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.300 (.200-.400)	2.50 (1.60-3.40)	7.70 (4.50-11.4)	2489
	13-14	*	< LOD	.200 (.100-.200)	1.30 (.800-1.70)	4.40 (2.70-6.10)	2686
Age group							
6-11 years	11-12	*	< LOD	< LOD	.700 (.300-1.00)	1.50 (1.00-1.90)	396
	13-14	*	< LOD	< LOD	.300 (.200-.500)	.600 (.300-1.30)	409
12-19 years	11-12	*	< LOD	.300 (<LOD-.400)	.900 (.500-1.60)	1.90 (1.10-7.10)	388
	13-14	*	< LOD	.200 (.100-.200)	1.20 (.500-1.90)	5.90 (1.70-26.7)	462
20 years and older	11-12	*	< LOD	.400 (.300-.500)	3.30 (2.20-5.50)	8.90 (5.50-13.9)	1705
	13-14	*	< LOD	.200 (.100-.300)	1.50 (.900-2.20)	4.90 (2.70-7.40)	1815
Gender							
Males	11-12	*	< LOD	< LOD	.400 (.200-.500)	1.30 (.500-2.40)	1259
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.400 (.300-.700)	1285
Females	11-12	*	< LOD	.900 (.600-1.40)	5.90 (3.40-10.4)	13.4 (9.30-24.5)	1230
	13-14	*	< LOD	.500 (.400-.800)	2.90 (1.90-4.90)	8.40 (4.90-15.3)	1401
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.300 (<LOD-.400)	1.80 (1.40-5.90)	10.0 (3.20-13.7)	316
	13-14	*	< LOD	.200 (.100-.300)	1.60 (.500-4.40)	7.10 (2.10-21.2)	438
Non-Hispanic blacks	11-12	*	< LOD	.200 (<LOD-.300)	1.60 (1.00-2.50)	4.70 (2.50-8.10)	665
	13-14	*	< LOD	.100 (<LOD-.200)	.800 (.500-1.70)	3.20 (1.70-5.50)	609
Non-Hispanic whites	11-12	*	< LOD	.300 (.200-.500)	2.60 (1.50-4.60)	8.00 (4.10-13.0)	813
	13-14	*	< LOD	.200 (.100-.200)	1.20 (.700-1.70)	3.20 (1.80-5.60)	988
All Hispanics	11-12	*	< LOD	.300 (<LOD-.400)	2.60 (1.30-7.00)	10.2 (3.40-21.5)	571
	13-14	*	< LOD	.200 (.100-.300)	1.90 (.700-4.30)	9.00 (3.20-20.7)	690
Asians	11-12	*	< LOD	.400 (<LOD-1.10)	3.10 (1.40-7.70)	12.0 (4.80-20.5)	352
	13-14	*	< LOD	.200 (<LOD-.500)	2.90 (1.10-10.0)	18.4 (5.60-26.1)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Butyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	1.16 (.910-1.62)	7.82 (6.26-11.2)	21.2 (16.8-27.3)	2548
	07-08	*	< LOD	1.16 (.880-1.59)	9.83 (6.51-13.5)	23.1 (18.1-30.4)	2604
	09-10	*	< LOD	.710 (.610-.930)	5.58 (3.55-10.0)	18.0 (10.2-27.6)	2749
Age group							
6-11 years	05-06	*	< LOD	.440 (.370-.660)	1.65 (1.00-5.29)	7.92 (1.64-30.5)	356
	07-08	*	< LOD	.540 (.410-.720)	1.24 (.920-2.80)	5.91 (.930-76.0)	389
	09-10	*	< LOD	.530 (<LOD-.630)	1.36 (.740-1.89)	2.74 (1.56-6.58)	415
12-19 years	05-06	*	.190 (<LOD-.250)	.690 (.490-1.20)	6.67 (3.60-11.2)	18.7 (9.52-28.9)	702
	07-08	*	< LOD	.670 (.450-.930)	3.70 (1.80-7.41)	9.64 (6.00-18.7)	401
	09-10	*	< LOD	.550 (.420-.790)	3.75 (1.21-11.9)	13.8 (3.75-23.7)	420
20 years and older	05-06	*	< LOD	1.49 (1.06-1.96)	9.07 (6.55-14.8)	25.5 (17.9-30.4)	1490
	07-08	*	< LOD	1.52 (1.04-2.21)	12.4 (8.35-15.1)	27.5 (21.2-36.8)	1814
	09-10	*	< LOD	.830 (.640-1.19)	7.06 (3.79-11.9)	22.0 (13.1-31.2)	1914
Gender							
Males	05-06	*	< LOD	.290 (<LOD-.350)	.830 (.570-1.16)	2.28 (1.43-2.91)	1270
	07-08	*	< LOD	.290 (.260-.340)	.830 (.620-1.36)	2.40 (1.56-4.85)	1294
	09-10	*	< LOD	< LOD	.700 (.560-1.09)	2.50 (1.18-5.87)	1399
Females	05-06	1.06 (.914-1.24)	.750 (.600-.860)	4.44 (3.01-6.26)	19.8 (13.5-25.7)	34.7 (26.9-42.7)	1278
	07-08	1.11 (.984-1.25)	.670 (.550-.920)	4.44 (3.02-6.12)	20.6 (14.6-25.9)	39.4 (28.1-77.7)	1310
	09-10	*	.450 (.420-.520)	2.17 (1.67-3.10)	13.5 (8.75-22.5)	28.2 (18.4-45.7)	1350
Race/ethnicity							
Mexican Americans	05-06	*	.240 (<LOD-.290)	1.20 (.760-1.68)	9.15 (5.36-15.2)	20.3 (15.8-29.2)	637
	07-08	*	< LOD	.810 (.610-1.07)	8.57 (3.28-12.0)	23.0 (12.7-29.5)	531
	09-10	*	< LOD	.930 (.570-1.76)	8.01 (4.77-10.5)	17.0 (10.5-27.1)	566
Non-Hispanic blacks	05-06	*	.220 (.180-.270)	1.46 (.750-2.64)	8.18 (3.65-17.9)	21.0 (10.9-51.3)	678
	07-08	*	.220 (<LOD-.280)	.900 (.570-1.27)	5.21 (3.13-6.18)	12.1 (6.14-21.4)	597
	09-10	*	< LOD	.390 (.270-.590)	2.63 (.890-4.71)	7.00 (3.26-11.9)	516
Non-Hispanic whites	05-06	*	< LOD	1.12 (.850-1.65)	6.93 (5.21-9.91)	20.9 (15.4-27.3)	1038
	07-08	*	< LOD	1.18 (.810-2.09)	10.7 (6.32-14.8)	26.8 (15.1-40.4)	1077
	09-10	*	< LOD	.780 (.620-1.13)	6.34 (3.44-12.6)	20.8 (9.12-33.2)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Butyl paraben (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.560 (.476-.667)	3.50 (2.00-4.55)	10.0 (6.26-13.5)	2487
	13-14	*	< LOD	.250 (.202-.318)	1.54 (.952-2.22)	4.39 (3.25-6.96)	2684
Age group							
6-11 years	11-12	*	< LOD	< LOD	.825 (.737-1.12)	1.56 (.825-2.44)	395
	13-14	*	< LOD	< LOD	.411 (.326-.538)	.714 (.467-.984)	409
12-19 years	11-12	*	< LOD	.378 (<LOD-.588)	1.35 (.588-2.21)	2.21 (1.50-7.45)	388
	13-14	*	< LOD	.194 (.159-.233)	1.02 (.484-1.88)	4.00 (1.74-12.1)	462
20 years and older	11-12	*	< LOD	.609 (.500-.789)	4.02 (2.58-6.28)	12.2 (7.04-17.9)	1704
	13-14	*	< LOD	.269 (.208-.382)	1.74 (1.15-2.63)	5.42 (3.42-8.95)	1813
Gender							
Males	11-12	*	< LOD	< LOD	.583 (.424-.824)	1.35 (.778-2.25)	1258
	13-14	*	< LOD	< LOD	.225 (.179-.280)	.417 (.304-.583)	1284
Females	11-12	*	< LOD	1.56 (1.08-2.00)	8.19 (5.33-12.1)	17.6 (11.8-30.8)	1229
	13-14	*	< LOD	.690 (.411-1.11)	3.42 (2.41-4.87)	10.2 (6.22-13.4)	1400
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.533 (<LOD-.660)	3.48 (1.30-4.33)	7.45 (3.50-19.2)	316
	13-14	*	< LOD	.247 (.189-.350)	1.71 (.811-5.00)	10.6 (1.87-25.4)	438
Non-Hispanic blacks	11-12	*	< LOD	.298 (<LOD-.378)	1.43 (.875-1.93)	3.47 (1.93-6.72)	665
	13-14	*	< LOD	.146 (<LOD-.189)	.583 (.368-1.16)	2.86 (1.19-3.25)	609
Non-Hispanic whites	11-12	*	< LOD	.606 (.500-.778)	3.78 (2.08-5.63)	11.5 (5.39-15.7)	811
	13-14	*	< LOD	.259 (.200-.368)	1.54 (.778-2.33)	4.03 (2.50-6.09)	987
All Hispanics	11-12	*	< LOD	.526 (<LOD-.700)	3.50 (1.53-6.88)	13.7 (6.54-19.2)	571
	13-14	*	< LOD	.250 (.219-.309)	1.73 (.896-3.92)	10.3 (3.56-14.3)	690
Asians	11-12	*	< LOD	.824 (<LOD-1.30)	6.28 (2.03-12.3)	14.9 (7.89-18.8)	352
	13-14	*	< LOD	.440 (<LOD-.606)	3.46 (1.43-13.0)	23.6 (5.45-38.4)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Ethyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	4.80 (3.40-6.00)	26.2 (19.4-31.9)	57.2 (40.3-83.4)	2548
	07-08	*	< LOD	5.40 (3.80-6.90)	29.3 (21.9-42.4)	72.1 (54.6-91.8)	2604
	09-10	*	1.10 (<LOD-1.20)	6.60 (4.90-8.30)	37.6 (24.4-51.3)	82.6 (60.3-119)	2749
Age group							
6-11 years	05-06	*	< LOD	< LOD	2.60 (1.70-4.70)	9.90 (2.80-30.7)	356
	07-08	*	< LOD	1.70 (1.10-2.60)	4.60 (2.30-36.7)	35.6 (2.60-282)	389
	09-10	*	< LOD	1.50 (1.20-1.80)	3.70 (2.50-5.30)	11.5 (4.50-18.4)	415
12-19 years	05-06	*	< LOD	2.30 (1.30-3.20)	11.3 (7.90-24.1)	38.0 (17.7-122)	702
	07-08	*	< LOD	3.00 (2.30-4.90)	23.0 (7.30-60.3)	60.3 (12.5-159)	401
	09-10	*	< LOD	3.50 (2.10-5.90)	33.8 (19.4-49.6)	83.2 (34.5-284)	420
20 years and older	05-06	*	< LOD	5.90 (4.60-8.10)	30.4 (22.3-38.6)	69.5 (48.1-89.5)	1490
	07-08	*	1.10 (<LOD-1.40)	6.20 (4.60-9.20)	34.7 (22.8-50.4)	77.4 (51.4-120)	1814
	09-10	*	1.30 (1.10-1.50)	8.40 (6.00-10.6)	45.0 (29.1-60.3)	91.4 (62.6-129)	1914
Gender							
Males	05-06	*	< LOD	1.90 (1.20-3.00)	8.90 (5.80-13.7)	25.2 (15.7-29.2)	1270
	07-08	*	< LOD	2.40 (1.50-3.00)	11.2 (6.60-15.3)	28.3 (15.3-42.8)	1294
	09-10	*	< LOD	2.20 (1.90-2.70)	10.4 (7.40-19.1)	36.4 (19.1-61.3)	1399
Females	05-06	*	1.30 (<LOD-2.20)	10.0 (7.50-13.2)	42.7 (32.3-62.8)	98.7 (74.7-147)	1278
	07-08	*	1.80 (1.40-2.50)	10.1 (6.90-16.5)	62.0 (38.2-80.8)	123 (78.5-259)	1310
	09-10	3.84 (3.35-4.41)	2.00 (1.60-2.40)	15.4 (12.5-18.4)	62.4 (45.7-78.7)	138 (92.2-211)	1350
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	3.70 (1.90-6.10)	24.0 (11.6-37.7)	55.6 (40.3-120)	637
	07-08	*	< LOD	4.10 (2.90-5.90)	23.6 (12.8-30.1)	48.3 (31.0-65.2)	531
	09-10	*	< LOD	4.30 (2.60-7.70)	31.0 (21.5-46.3)	65.5 (46.3-92.2)	566
Non-Hispanic blacks	05-06	*	1.00 (<LOD-1.50)	5.70 (3.70-9.80)	31.3 (20.4-52.1)	92.3 (41.5-166)	678
	07-08	*	1.00 (<LOD-1.50)	7.90 (3.90-15.8)	39.9 (24.0-63.4)	97.2 (58.3-256)	597
	09-10	3.62 (3.11-4.22)	1.90 (1.60-2.40)	11.1 (8.10-17.5)	58.6 (33.8-93.7)	166 (66.0-297)	516
Non-Hispanic whites	05-06	*	< LOD	4.80 (3.10-6.10)	24.0 (15.5-32.3)	54.7 (36.4-86.8)	1038
	07-08	*	1.00 (<LOD-1.30)	5.20 (3.50-7.10)	27.2 (18.0-40.8)	67.1 (42.8-98.1)	1077
	09-10	*	1.10 (<LOD-1.20)	6.50 (4.50-8.50)	37.5 (22.7-52.7)	78.7 (49.7-138)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Ethyl paraben (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	5.10 (4.00-7.10)	33.6 (24.6-42.9)	68.8 (52.1-106)	2489
	13-14	*	< LOD	5.30 (4.50-6.50)	33.5 (25.5-46.4)	77.0 (66.4-97.9)	2686
Age group							
6-11 years	11-12	*	< LOD	< LOD	3.40 (1.70-6.90)	6.90 (3.40-17.4)	396
	13-14	*	< LOD	1.30 (1.00-1.70)	5.60 (2.90-8.40)	10.7 (6.60-17.3)	409
12-19 years	11-12	*	< LOD	2.00 (1.10-3.10)	9.60 (5.50-14.0)	21.5 (9.60-69.2)	388
	13-14	*	< LOD	2.40 (1.60-3.40)	15.6 (6.60-29.3)	48.7 (19.4-83.4)	462
20 years and older	11-12	*	< LOD	7.20 (5.50-10.0)	41.1 (33.4-51.0)	86.5 (58.0-140)	1705
	13-14	*	1.10 (<LOD-1.30)	6.90 (5.50-8.60)	43.3 (32.2-53.4)	84.8 (70.5-114)	1815
Gender							
Males	11-12	*	< LOD	2.20 (1.60-2.90)	10.0 (6.10-18.9)	31.2 (18.9-39.8)	1259
	13-14	*	< LOD	2.40 (1.80-3.10)	8.50 (6.00-14.4)	34.0 (15.6-62.8)	1285
Females	11-12	*	1.60 (1.10-2.60)	12.9 (9.40-17.5)	58.2 (45.4-68.8)	145 (86.5-153)	1230
	13-14	*	1.60 (1.20-2.30)	12.5 (8.60-17.8)	58.7 (46.4-72.9)	110 (81.5-149)	1401
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	4.40 (2.40-6.40)	22.0 (12.9-35.5)	45.4 (22.4-171)	316
	13-14	*	< LOD	4.20 (2.60-7.70)	32.6 (16.7-53.4)	70.6 (52.5-123)	438
Non-Hispanic blacks	11-12	*	1.50 (1.10-2.00)	8.00 (5.80-12.8)	55.4 (33.4-79.7)	106 (82.8-139)	665
	13-14	*	1.40 (1.10-1.90)	6.80 (4.90-9.20)	48.8 (29.9-77.0)	115 (77.0-230)	609
Non-Hispanic whites	11-12	*	< LOD	4.60 (3.50-9.10)	33.6 (21.6-45.4)	62.6 (42.9-132)	813
	13-14	*	< LOD	5.20 (3.90-6.50)	29.2 (17.8-46.4)	68.5 (48.7-86.6)	988
All Hispanics	11-12	*	< LOD	4.50 (3.00-5.80)	24.4 (15.2-34.6)	55.9 (27.1-115)	571
	13-14	*	< LOD	5.50 (3.70-8.70)	35.5 (23.9-53.4)	90.4 (62.5-123)	690
Asians	11-12	*	< LOD	4.90 (3.40-8.30)	39.4 (16.0-59.1)	92.4 (43.4-186)	352
	13-14	*	< LOD	6.00 (2.70-11.3)	52.1 (27.4-75.0)	99.9 (65.5-174)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 1.0 and 1.0, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Ethyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	4.61 (3.39-6.30)	27.1 (19.1-34.0)	66.5 (46.5-84.2)	2548
	07-08	*	< LOD	5.56 (4.31-7.56)	32.7 (22.5-50.2)	80.0 (53.2-117)	2604
	09-10	*	1.65 (<LOD-1.82)	6.11 (4.90-7.96)	36.6 (28.0-47.2)	94.6 (67.3-127)	2749
Age group							
6-11 years	05-06	*	< LOD	< LOD	4.18 (1.91-10.2)	13.5 (4.18-29.0)	356
	07-08	*	< LOD	2.54 (1.82-3.30)	6.13 (3.26-34.3)	34.3 (3.30-207)	389
	09-10	*	< LOD	2.37 (1.97-3.09)	5.00 (3.74-6.67)	10.1 (6.11-27.3)	415
12-19 years	05-06	*	< LOD	1.94 (1.29-2.65)	10.9 (3.57-20.2)	32.0 (14.1-57.8)	702
	07-08	*	< LOD	2.93 (1.93-3.97)	12.9 (4.60-37.9)	37.9 (8.79-110)	401
	09-10	*	< LOD	3.11 (2.22-5.94)	26.2 (13.0-33.9)	52.4 (28.8-177)	420
20 years and older	05-06	*	< LOD	6.36 (4.63-7.92)	32.4 (23.7-46.0)	76.8 (57.3-97.9)	1490
	07-08	*	1.58 (<LOD-1.97)	6.97 (4.94-10.9)	38.5 (24.8-61.9)	94.1 (53.6-146)	1814
	09-10	*	1.82 (1.61-2.13)	8.08 (5.92-10.7)	43.7 (33.1-56.0)	106 (78.1-137)	1914
Gender							
Males	05-06	*	< LOD	1.82 (1.48-2.15)	6.38 (3.55-9.95)	15.5 (10.2-22.3)	1270
	07-08	*	< LOD	2.14 (1.67-3.03)	8.61 (5.54-12.4)	21.7 (11.7-32.7)	1294
	09-10	*	< LOD	2.45 (2.22-2.92)	8.63 (6.14-13.7)	28.8 (14.4-43.2)	1399
Females	05-06	*	2.09 (<LOD-2.60)	12.7 (8.45-16.2)	57.3 (40.7-75.2)	107 (82.9-141)	1278
	07-08	*	2.63 (2.09-3.55)	13.9 (9.09-22.5)	66.1 (40.9-95.1)	130 (78.8-203)	1310
	09-10	4.63 (4.13-5.19)	2.90 (2.47-3.43)	16.8 (13.7-22.0)	71.9 (53.4-98.8)	173 (121-227)	1350
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	3.49 (2.09-5.23)	23.6 (11.8-33.2)	68.5 (32.1-107)	637
	07-08	*	< LOD	4.44 (2.86-5.81)	22.5 (15.9-27.2)	47.7 (26.7-74.2)	531
	09-10	*	< LOD	4.40 (3.09-6.31)	30.0 (16.0-36.9)	59.1 (36.9-87.2)	566
Non-Hispanic blacks	05-06	*	.970 (<LOD-1.14)	4.48 (2.90-6.07)	22.0 (14.1-36.8)	47.5 (33.7-106)	678
	07-08	*	1.18 (<LOD-1.47)	6.37 (3.20-10.9)	38.8 (16.5-53.1)	90.7 (42.6-172)	597
	09-10	2.62 (2.14-3.21)	1.57 (1.20-2.05)	7.35 (5.15-9.97)	44.9 (22.0-75.0)	98.8 (60.0-162)	516
Non-Hispanic whites	05-06	*	< LOD	4.73 (3.38-6.58)	27.5 (16.2-38.4)	70.6 (46.0-91.2)	1038
	07-08	*	1.48 (<LOD-1.82)	5.71 (3.74-8.97)	32.3 (20.0-53.6)	75.7 (40.5-121)	1077
	09-10	*	1.79 (<LOD-2.03)	6.63 (4.84-9.18)	37.7 (27.7-53.4)	114 (62.8-164)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Ethyl paraben (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	6.57 (5.32-8.80)	39.5 (28.4-50.6)	87.7 (63.6-121)	2487
	13-14	*	< LOD	5.41 (4.31-6.33)	36.6 (26.5-47.5)	99.3 (69.5-129)	2684
Age group							
6-11 years	11-12	*	< LOD	< LOD	5.92 (3.74-7.50)	7.95 (6.51-17.8)	395
	13-14	*	< LOD	2.45 (2.03-2.96)	6.30 (3.94-9.44)	12.4 (7.02-26.6)	409
12-19 years	11-12	*	< LOD	2.53 (1.81-3.83)	11.1 (6.70-14.5)	20.5 (11.9-44.1)	388
	13-14	*	< LOD	2.24 (1.83-2.81)	11.8 (4.44-15.7)	36.1 (13.2-73.2)	462
20 years and older	11-12	*	< LOD	9.17 (6.69-12.5)	46.4 (34.7-64.8)	110 (71.5-146)	1704
	13-14	*	1.57 (<LOD-1.84)	6.97 (5.76-8.73)	47.0 (35.1-63.1)	113 (76.0-169)	1813
Gender							
Males	11-12	*	< LOD	2.45 (2.07-2.94)	8.76 (5.32-14.2)	23.2 (13.2-33.1)	1258
	13-14	*	< LOD	2.17 (1.78-2.63)	7.89 (5.23-12.5)	26.6 (13.8-41.0)	1284
Females	11-12	*	2.96 (2.37-4.08)	18.9 (12.5-27.6)	81.9 (55.6-121)	146 (115-181)	1229
	13-14	*	2.54 (2.09-3.05)	14.5 (10.3-20.8)	73.2 (51.8-104)	167 (104-221)	1400
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	4.73 (3.29-8.92)	25.4 (14.2-33.9)	45.4 (32.6-121)	316
	13-14	*	< LOD	4.85 (3.13-8.28)	33.9 (16.4-60.9)	75.8 (30.0-319)	438
Non-Hispanic blacks	11-12	*	1.39 (1.06-1.75)	6.98 (4.74-8.92)	40.2 (24.8-55.3)	79.3 (61.1-135)	665
	13-14	*	1.20 (1.05-1.39)	5.13 (3.53-7.24)	30.6 (18.4-38.8)	77.2 (38.8-129)	609
Non-Hispanic whites	11-12	*	< LOD	7.20 (4.88-10.4)	40.1 (26.4-63.5)	93.8 (58.4-131)	811
	13-14	*	< LOD	5.25 (3.95-6.33)	36.6 (22.0-51.9)	87.1 (51.9-162)	987
All Hispanics	11-12	*	< LOD	5.03 (3.74-7.13)	31.6 (13.2-54.0)	60.2 (43.6-121)	571
	13-14	*	< LOD	6.55 (3.94-8.72)	35.1 (26.6-56.1)	103 (56.1-135)	690
Asians	11-12	*	< LOD	7.21 (4.46-13.6)	48.9 (26.3-78.9)	100 (50.4-149)	352
	13-14	*	< LOD	7.52 (3.33-14.6)	65.9 (36.9-105)	116 (80.6-191)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Methyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	56.4 (46.9-67.9)	63.5 (47.9-74.5)	216 (168-282)	560 (432-777)	974 (827-1110)	2548
	07-08	60.1 (49.6-72.8)	59.8 (47.5-73.3)	204 (171-253)	544 (444-675)	902 (746-1100)	2604
	09-10	57.1 (51.0-63.9)	55.1 (46.7-62.6)	213 (179-259)	621 (546-716)	1010 (919-1170)	2749
Age group							
6-11 years	05-06	33.5 (25.6-43.8)	25.0 (19.4-35.3)	86.7 (61.5-153)	289 (238-868)	1560 (389-2090)	356
	07-08	35.2 (25.0-49.6)	30.1 (19.6-38.5)	94.0 (46.6-214)	340 (218-527)	651 (430-995)	389
	09-10	33.9 (27.4-41.9)	26.5 (20.4-33.3)	79.4 (59.0-126)	415 (163-849)	873 (477-1230)	415
12-19 years	05-06	53.8 (43.9-66.0)	53.5 (39.4-65.7)	192 (163-264)	491 (380-720)	901 (571-1210)	702
	07-08	64.9 (50.3-83.8)	66.3 (48.0-96.7)	221 (180-276)	521 (424-789)	971 (574-1390)	401
	09-10	53.9 (40.9-70.9)	56.5 (39.4-75.6)	176 (122-291)	716 (399-934)	984 (805-1210)	420
20 years and older	05-06	60.3 (48.7-74.7)	70.0 (57.1-85.3)	225 (177-322)	602 (439-814)	974 (827-1110)	1490
	07-08	63.0 (51.8-76.7)	64.0 (51.4-79.8)	210 (172-267)	558 (447-678)	916 (743-1190)	1814
	09-10	61.0 (53.5-69.6)	59.1 (50.6-72.6)	239 (188-276)	625 (566-711)	1010 (909-1270)	1914
Gender							
Males	05-06	29.8 (24.8-35.8)	23.7 (19.5-29.4)	97.6 (78.1-121)	299 (229-355)	491 (385-743)	1270
	07-08	33.6 (27.3-41.3)	27.4 (20.8-39.9)	93.5 (71.0-137)	312 (260-407)	598 (460-734)	1294
	09-10	31.7 (27.6-36.4)	25.3 (20.6-30.6)	94.0 (76.8-122)	366 (275-482)	727 (569-919)	1399
Females	05-06	104 (80.8-135)	137 (93.0-168)	356 (279-427)	842 (660-974)	1110 (956-1330)	1278
	07-08	105 (90.2-123)	116 (95.2-139)	315 (248-424)	683 (558-901)	1140 (917-1420)	1310
	09-10	100 (87.9-114)	106 (90.9-125)	349 (271-405)	812 (696-931)	1230 (1010-1550)	1350
Race/ethnicity							
Mexican Americans	05-06	78.2 (61.0-100)	86.3 (64.7-121)	301 (233-349)	742 (474-896)	1100 (896-1170)	637
	07-08	80.5 (66.0-98.2)	87.0 (63.4-117)	283 (222-348)	630 (533-791)	1030 (773-1240)	531
	09-10	82.9 (68.6-100)	85.5 (73.0-99.8)	293 (231-385)	821 (536-1120)	1580 (855-2360)	566
Non-Hispanic blacks	05-06	174 (133-229)	216 (150-306)	616 (465-789)	1180 (1010-1480)	1690 (1210-2880)	678
	07-08	152 (135-171)	159 (135-194)	483 (421-552)	1080 (938-1350)	1720 (1210-2700)	597
	09-10	191 (171-213)	223 (170-288)	678 (533-849)	1470 (1220-2010)	2340 (1650-2750)	516
Non-Hispanic whites	05-06	43.8 (36.7-52.3)	44.3 (36.7-58.2)	165 (132-209)	412 (320-520)	806 (485-974)	1038
	07-08	48.9 (39.9-59.9)	47.6 (37.8-62.0)	158 (129-198)	430 (301-557)	671 (524-921)	1077
	09-10	43.5 (39.4-48.1)	41.3 (33.5-47.7)	150 (127-176)	463 (361-557)	757 (619-888)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 1.0, 1.0, and 1.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Methyl paraben (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	40.3 (35.4-46.0)	39.0 (32.4-47.8)	172 (149-198)	471 (401-593)	841 (692-975)	2489
	13-14	48.1 (43.0-53.8)	41.7 (34.5-50.4)	167 (151-186)	445 (404-509)	819 (663-918)	2686
Age group							
6-11 years	11-12	18.5 (15.7-21.9)	13.8 (11.2-17.7)	58.6 (43.8-78.2)	217 (155-363)	549 (329-983)	396
	13-14	28.6 (21.4-38.1)	22.7 (17.8-30.3)	62.1 (43.5-100)	260 (150-408)	542 (290-878)	409
12-19 years	11-12	26.3 (19.0-36.5)	17.0 (9.80-31.2)	121 (62.4-219)	538 (376-667)	772 (609-996)	388
	13-14	40.5 (32.7-50.1)	32.0 (25.2-41.7)	147 (89.6-193)	452 (309-725)	942 (612-1220)	462
20 years and older	11-12	46.8 (41.3-53.1)	48.9 (37.8-61.0)	188 (158-231)	477 (409-611)	870 (676-1070)	1705
	13-14	52.2 (46.0-59.3)	46.8 (37.8-57.3)	179 (163-201)	457 (417-525)	823 (663-918)	1815
Gender							
Males	11-12	23.2 (19.2-28.1)	17.3 (12.5-23.4)	81.9 (65.7-119)	312 (224-396)	575 (401-822)	1259
	13-14	31.1 (26.8-36.2)	24.4 (20.1-29.8)	77.2 (67.2-94.6)	273 (230-328)	561 (408-740)	1285
Females	11-12	68.6 (59.0-79.9)	76.9 (67.5-89.2)	248 (201-309)	637 (493-819)	972 (772-1190)	1230
	13-14	72.8 (63.6-83.4)	73.9 (61.0-94.1)	248 (217-276)	583 (490-680)	904 (801-1070)	1401
Race/ethnicity							
Mexican Americans	11-12	43.9 (31.5-61.2)	44.9 (26.2-68.1)	192 (111-302)	529 (328-912)	1080 (471-1740)	316
	13-14	62.1 (49.2-78.4)	57.4 (45.1-84.0)	230 (154-341)	518 (361-725)	915 (535-1530)	438
Non-Hispanic blacks	11-12	123 (100-152)	155 (115-199)	450 (341-579)	934 (819-1110)	1390 (1020-1990)	665
	13-14	111 (96.1-129)	110 (86.4-143)	375 (313-482)	927 (709-1180)	1430 (1020-2040)	609
Non-Hispanic whites	11-12	31.0 (26.9-35.8)	30.0 (23.4-36.4)	130 (96.8-160)	372 (269-453)	603 (453-772)	813
	13-14	37.9 (32.8-43.7)	32.5 (28.3-39.0)	123 (94.3-153)	328 (267-391)	573 (422-711)	988
All Hispanics	11-12	50.1 (40.5-62.1)	46.0 (39.5-59.4)	203 (130-301)	666 (406-1080)	1170 (766-2100)	571
	13-14	61.9 (52.2-73.3)	60.0 (49.0-73.5)	221 (161-291)	539 (417-702)	842 (639-1070)	690
Asians	11-12	36.1 (29.2-44.5)	37.1 (24.6-57.4)	140 (97.9-175)	395 (259-509)	692 (461-1030)	352
	13-14	45.0 (37.9-53.5)	38.9 (30.5-53.0)	168 (118-197)	384 (271-475)	663 (393-914)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 1.0 and 1.0, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Methyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	55.0 (46.8-64.6)	58.8 (47.0-73.4)	221 (170-264)	527 (426-685)	902 (753-995)	2548
	07-08	60.6 (49.8-73.8)	61.0 (45.3-83.2)	228 (188-288)	538 (439-645)	820 (694-1000)	2604
	09-10	59.6 (53.5-66.3)	57.7 (52.3-68.5)	232 (195-262)	544 (468-632)	887 (734-1020)	2749
Age group							
6-11 years	05-06	36.8 (27.9-48.7)	26.9 (21.0-36.6)	108 (55.9-164)	259 (195-753)	1540 (313-2510)	356
	07-08	43.4 (31.3-60.2)	33.1 (21.8-55.0)	118 (62.3-197)	424 (218-668)	817 (558-1020)	389
	09-10	44.2 (35.7-54.6)	32.3 (26.5-42.9)	110 (67.6-158)	483 (258-722)	849 (535-1080)	415
12-19 years	05-06	40.1 (33.7-47.8)	41.7 (31.5-56.3)	160 (129-178)	362 (280-428)	549 (434-656)	702
	07-08	50.5 (40.1-63.7)	52.8 (36.6-78.1)	167 (111-245)	336 (292-395)	475 (376-623)	401
	09-10	43.3 (33.5-55.9)	43.5 (27.5-68.6)	168 (123-221)	399 (292-558)	632 (425-890)	420
20 years and older	05-06	60.5 (50.5-72.5)	69.6 (51.5-90.9)	251 (189-320)	602 (462-729)	930 (788-1010)	1490
	07-08	64.7 (52.9-79.2)	69.7 (51.1-92.5)	256 (209-316)	576 (450-710)	865 (697-1130)	1814
	09-10	64.6 (57.0-73.3)	71.2 (56.6-84.7)	251 (217-287)	566 (495-673)	924 (753-1060)	1914
Gender							
Males	05-06	23.9 (20.6-27.8)	21.1 (17.4-25.3)	72.1 (58.0-89.5)	209 (160-260)	368 (262-498)	1270
	07-08	28.3 (22.8-35.0)	23.5 (17.2-33.2)	80.7 (56.9-111)	257 (181-318)	444 (386-558)	1294
	09-10	28.4 (25.1-32.2)	23.3 (19.3-26.9)	77.7 (59.6-105)	260 (212-370)	516 (412-633)	1399
Females	05-06	123 (99.3-152)	147 (111-196)	377 (319-445)	788 (676-910)	1050 (937-1290)	1278
	07-08	126 (109-145)	160 (134-182)	374 (325-422)	734 (576-879)	1040 (835-1260)	1310
	09-10	121 (107-137)	146 (125-162)	359 (307-426)	745 (606-890)	1080 (924-1390)	1350
Race/ethnicity							
Mexican Americans	05-06	70.3 (57.1-86.7)	85.8 (67.2-106)	249 (191-303)	515 (431-656)	870 (656-1080)	637
	07-08	78.5 (63.6-97.0)	96.2 (59.4-127)	293 (245-370)	627 (541-728)	831 (729-963)	531
	09-10	82.3 (71.1-95.2)	95.2 (76.0-113)	284 (237-337)	623 (459-899)	1130 (657-2120)	566
Non-Hispanic blacks	05-06	122 (93.0-161)	161 (98.2-225)	377 (334-462)	792 (581-1100)	1220 (916-1590)	678
	07-08	118 (105-133)	134 (111-155)	356 (311-403)	757 (573-882)	1030 (847-1290)	597
	09-10	138 (118-163)	165 (127-203)	403 (356-498)	928 (729-1120)	1350 (1080-1680)	516
Non-Hispanic whites	05-06	46.1 (39.0-54.4)	45.6 (34.5-59.7)	170 (142-234)	447 (339-706)	814 (640-995)	1038
	07-08	51.0 (40.5-64.2)	46.7 (35.8-66.3)	191 (154-230)	481 (383-614)	747 (574-966)	1077
	09-10	48.9 (44.5-53.7)	45.9 (39.5-51.9)	184 (154-215)	468 (388-560)	734 (631-924)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary Methyl paraben (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	46.0 (41.3-51.3)	47.9 (36.9-61.7)	203 (179-228)	494 (399-571)	797 (632-993)	2487
	13-14	48.2 (43.1-53.9)	41.8 (35.5-49.1)	180 (145-205)	410 (379-460)	653 (585-697)	2684
Age group							
6-11 years	11-12	26.4 (22.8-30.7)	19.4 (14.6-23.8)	69.9 (53.0-113)	282 (182-458)	644 (354-1220)	395
	13-14	36.1 (28.0-46.5)	28.2 (20.9-36.5)	72.7 (50.9-122)	263 (160-564)	588 (341-881)	409
12-19 years	11-12	25.7 (19.3-34.2)	17.1 (11.8-33.4)	100 (53.2-175)	335 (213-545)	609 (450-773)	388
	13-14	32.9 (27.7-39.0)	24.3 (18.1-33.8)	99.5 (75.3-145)	339 (234-412)	495 (377-655)	462
20 years and older	11-12	53.4 (47.7-59.8)	64.9 (53.2-75.2)	228 (199-250)	523 (429-623)	815 (669-1110)	1704
	13-14	52.6 (46.6-59.4)	47.5 (38.7-58.5)	199 (170-229)	429 (390-476)	666 (591-781)	1813
Gender							
Males	11-12	21.8 (18.3-26.0)	16.2 (12.5-21.1)	74.1 (57.1-93.3)	250 (181-321)	450 (327-560)	1258
	13-14	26.1 (22.9-29.8)	18.4 (16.6-22.2)	61.3 (52.1-74.0)	215 (172-284)	411 (323-479)	1284
Females	11-12	94.5 (83.1-108)	119 (101-136)	309 (259-356)	682 (571-805)	1090 (797-1300)	1229
	13-14	86.5 (74.1-101)	90.5 (72.2-125)	266 (237-307)	564 (506-614)	828 (665-998)	1400
Race/ethnicity							
Mexican Americans	11-12	49.5 (37.0-66.2)	50.5 (32.5-79.7)	200 (133-298)	496 (316-982)	1090 (484-2160)	316
	13-14	63.3 (46.8-85.5)	67.9 (45.6-96.0)	229 (146-317)	570 (360-764)	883 (578-1130)	438
Non-Hispanic blacks	11-12	96.1 (79.4-116)	117 (88.0-157)	341 (274-382)	696 (626-842)	1090 (879-1190)	665
	13-14	82.0 (75.2-89.5)	84.6 (65.8-100)	251 (211-289)	584 (521-672)	924 (655-1120)	609
Non-Hispanic whites	11-12	37.8 (33.1-43.2)	33.4 (25.7-47.6)	177 (141-208)	425 (321-556)	719 (544-833)	811
	13-14	39.9 (34.5-46.2)	31.8 (26.4-38.7)	139 (104-182)	357 (294-404)	560 (444-640)	987
All Hispanics	11-12	56.1 (46.3-68.0)	57.1 (47.2-75.2)	217 (160-332)	577 (456-813)	1090 (662-1490)	571
	13-14	61.4 (49.8-75.7)	60.8 (51.7-74.6)	227 (179-270)	542 (390-637)	774 (570-1070)	690
Asians	11-12	48.3 (39.5-59.2)	54.9 (31.6-79.8)	198 (167-238)	473 (344-600)	840 (528-1170)	352
	13-14	56.9 (45.2-71.6)	59.1 (35.7-82.0)	202 (160-275)	469 (365-608)	761 (475-911)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary n-Propyl paraben (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	7.91 (6.41-9.77)	8.70 (5.90-12.4)	48.9 (36.6-64.8)	160 (129-200)	299 (237-354)	2548
	07-08	7.59 (6.22-9.26)	7.60 (5.70-10.6)	44.1 (34.1-55.6)	144 (115-196)	268 (231-290)	2604
	09-10	6.97 (5.96-8.16)	6.40 (5.10-8.00)	44.3 (38.6-50.3)	153 (133-183)	297 (233-334)	2749
Age group							
6-11 years	05-06	3.41 (2.43-4.77)	2.50 (1.60-4.30)	11.1 (7.10-21.0)	47.5 (30.0-91.9)	125 (55.8-383)	356
	07-08	3.61 (2.39-5.44)	3.50 (1.90-6.00)	13.7 (7.60-22.8)	49.1 (21.7-99.6)	99.6 (80.4-120)	389
	09-10	3.28 (2.58-4.17)	2.70 (2.00-4.00)	10.2 (7.00-14.0)	42.9 (28.2-61.6)	114 (56.8-239)	415
12-19 years	05-06	8.16 (5.70-11.7)	8.40 (5.00-13.9)	46.4 (24.1-68.5)	165 (96.7-222)	310 (201-361)	702
	07-08	8.85 (6.73-11.6)	7.90 (5.30-12.0)	49.2 (31.1-62.2)	193 (100-234)	271 (195-314)	401
	09-10	7.01 (5.13-9.58)	7.90 (4.40-11.0)	39.7 (24.8-57.8)	153 (78.1-299)	367 (136-694)	420
20 years and older	05-06	8.67 (6.83-11.0)	11.2 (7.70-14.4)	55.6 (41.2-75.6)	172 (130-233)	302 (237-367)	1490
	07-08	8.04 (6.56-9.84)	8.40 (6.10-11.9)	48.8 (38.3-61.1)	152 (118-202)	272 (232-312)	1814
	09-10	7.58 (6.28-9.15)	7.50 (5.30-9.90)	48.9 (42.6-58.0)	166 (139-199)	298 (251-334)	1914
Gender							
Males	05-06	2.96 (2.33-3.77)	2.30 (1.60-3.10)	13.8 (9.00-18.0)	51.7 (39.7-70.9)	125 (77.2-185)	1270
	07-08	3.02 (2.47-3.71)	2.30 (1.70-3.30)	12.6 (8.40-17.4)	56.4 (38.9-89.5)	140 (98.1-209)	1294
	09-10	2.77 (2.26-3.40)	2.00 (1.40-2.60)	11.4 (7.70-15.4)	57.3 (44.6-67.8)	134 (86.1-184)	1399
Females	05-06	20.4 (16.0-25.9)	29.1 (21.6-37.5)	93.0 (75.7-129)	254 (193-318)	357 (318-395)	1278
	07-08	18.4 (15.7-21.5)	23.3 (20.5-26.1)	76.3 (62.9-100)	210 (164-269)	312 (271-363)	1310
	09-10	16.9 (14.6-19.4)	20.2 (17.0-25.9)	83.3 (70.0-92.4)	227 (171-295)	361 (297-502)	1350
Race/ethnicity							
Mexican Americans	05-06	10.6 (8.08-13.8)	12.1 (7.00-17.5)	65.9 (43.5-93.3)	247 (174-293)	389 (293-453)	637
	07-08	7.82 (5.98-10.2)	7.00 (4.20-12.9)	52.1 (36.9-64.1)	146 (105-201)	217 (161-401)	531
	09-10	8.94 (7.25-11.0)	8.70 (5.70-13.3)	58.9 (45.7-68.5)	182 (117-299)	451 (269-911)	566
Non-Hispanic blacks	05-06	26.8 (21.5-33.3)	34.7 (28.3-44.2)	125 (89.5-165)	331 (236-411)	531 (367-730)	678
	07-08	21.3 (18.4-24.7)	28.6 (21.8-34.8)	85.4 (70.8-96.9)	222 (176-282)	410 (277-506)	597
	09-10	26.1 (21.8-31.3)	29.9 (23.4-39.5)	129 (87.4-167)	322 (229-503)	572 (369-654)	516
Non-Hispanic whites	05-06	6.21 (5.02-7.68)	6.00 (4.60-9.10)	35.7 (28.4-49.6)	130 (92.1-157)	229 (156-318)	1038
	07-08	6.49 (5.05-8.33)	6.10 (4.50-9.20)	36.8 (26.9-47.5)	129 (91.3-196)	251 (190-290)	1077
	09-10	5.34 (4.55-6.27)	4.40 (3.60-5.70)	35.6 (26.1-44.3)	128 (92.4-141)	235 (170-300)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary n-Propyl paraben (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.39 (4.69-6.19)	4.70 (3.80-5.90)	28.5 (24.5-34.1)	126 (94.0-142)	200 (163-278)	2489
	13-14	5.74 (5.06-6.50)	4.80 (3.90-5.70)	33.7 (27.1-41.1)	120 (106-130)	224 (193-284)	2686
Age group							
6-11 years	11-12	2.20 (1.81-2.68)	1.40 (1.20-1.80)	6.40 (4.80-11.8)	28.1 (17.9-53.4)	77.7 (41.3-185)	396
	13-14	2.96 (2.20-3.99)	2.40 (1.80-2.80)	7.60 (5.90-15.4)	44.7 (28.5-75.6)	113 (45.3-213)	409
12-19 years	11-12	3.69 (2.77-4.92)	2.80 (1.80-4.20)	14.7 (9.50-23.4)	81.8 (51.5-151)	208 (122-357)	388
	13-14	5.15 (3.89-6.83)	3.10 (2.40-4.90)	24.5 (12.5-54.0)	119 (90.5-147)	217 (139-299)	462
20 years and older	11-12	6.29 (5.45-7.25)	6.20 (4.80-8.50)	35.4 (29.2-43.2)	135 (98.1-151)	213 (163-323)	1705
	13-14	6.27 (5.51-7.12)	5.70 (4.40-7.20)	39.2 (31.3-43.2)	126 (112-161)	235 (202-304)	1815
Gender							
Males	11-12	2.44 (1.99-2.98)	1.70 (1.40-2.10)	8.90 (6.70-12.0)	46.5 (28.0-80.6)	137 (65.8-258)	1259
	13-14	2.61 (2.20-3.09)	1.70 (1.30-2.20)	9.20 (6.20-13.3)	49.8 (37.1-65.8)	128 (94.0-175)	1285
Females	11-12	11.6 (10.0-13.4)	13.8 (12.4-16.3)	54.7 (48.6-67.2)	151 (141-175)	252 (183-323)	1230
	13-14	12.2 (10.6-14.1)	13.5 (10.3-18.2)	57.0 (50.1-67.6)	179 (143-203)	329 (230-376)	1401
Race/ethnicity							
Mexican Americans	11-12	6.15 (3.98-9.52)	6.50 (2.60-11.1)	30.0 (22.7-57.5)	181 (70.4-312)	312 (146-1060)	316
	13-14	7.76 (5.55-10.8)	6.00 (3.60-14.0)	45.0 (29.7-57.4)	124 (80.7-184)	195 (137-342)	438
Non-Hispanic blacks	11-12	16.4 (14.1-19.1)	18.0 (13.4-23.1)	61.1 (49.9-82.9)	183 (147-225)	340 (221-477)	665
	13-14	15.4 (13.1-18.0)	15.7 (10.8-20.3)	71.8 (58.2-86.4)	249 (187-305)	396 (344-430)	609
Non-Hispanic whites	11-12	4.14 (3.57-4.79)	3.30 (2.50-4.20)	21.0 (15.3-30.8)	94.6 (70.3-135)	163 (137-202)	813
	13-14	4.46 (3.78-5.27)	3.40 (2.70-4.20)	23.8 (17.4-32.2)	98.3 (78.6-120)	202 (130-241)	988
All Hispanics	11-12	6.87 (5.42-8.71)	6.70 (3.80-9.30)	33.6 (26.1-50.4)	181 (95.3-273)	333 (236-556)	571
	13-14	7.73 (6.26-9.56)	6.20 (4.40-10.4)	45.0 (35.7-54.1)	127 (112-157)	207 (165-324)	690
Asians	11-12	5.07 (4.06-6.34)	5.50 (3.40-7.70)	27.0 (22.3-37.2)	95.8 (63.6-143)	169 (123-292)	352
	13-14	4.42 (3.71-5.27)	3.90 (2.20-8.10)	28.8 (19.3-41.1)	77.8 (60.6-120)	158 (95.5-209)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary n-Propyl paraben (creatinine corrected) (2005 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	7.71 (6.40-9.30)	8.27 (5.87-11.3)	52.9 (41.6-66.1)	161 (140-178)	263 (226-288)	2548
	07-08	7.65 (6.22-9.40)	8.00 (5.34-11.6)	50.0 (39.5-59.8)	138 (115-168)	235 (199-293)	2604
	09-10	7.28 (6.30-8.41)	6.67 (5.35-8.50)	45.1 (37.3-53.5)	155 (128-187)	253 (223-300)	2749
Age group							
6-11 years	05-06	3.75 (2.67-5.26)	2.70 (1.89-4.43)	11.5 (8.07-16.0)	52.1 (22.9-100)	121 (55.5-352)	356
	07-08	4.45 (3.03-6.53)	3.50 (1.79-6.85)	16.5 (8.82-28.8)	59.1 (28.6-94.4)	98.4 (65.0-139)	389
	09-10	4.27 (3.34-5.47)	3.33 (2.41-4.62)	12.0 (8.52-16.6)	46.1 (27.5-108)	143 (72.5-243)	415
12-19 years	05-06	6.08 (4.36-8.49)	5.44 (3.03-10.5)	33.0 (20.7-48.7)	116 (81.9-161)	175 (140-239)	702
	07-08	6.88 (5.30-8.94)	5.68 (3.51-9.90)	33.2 (26.7-46.5)	103 (87.2-112)	132 (105-235)	401
	09-10	5.64 (4.17-7.62)	5.19 (3.53-9.03)	32.9 (20.4-42.4)	107 (57.6-217)	218 (101-397)	420
20 years and older	05-06	8.70 (7.08-10.7)	10.8 (7.39-15.2)	63.2 (49.7-80.5)	178 (152-198)	270 (236-293)	1490
	07-08	8.26 (6.70-10.2)	9.91 (6.15-12.6)	57.9 (47.3-69.1)	161 (127-199)	273 (212-312)	1814
	09-10	8.03 (6.74-9.56)	8.27 (6.10-10.8)	55.5 (43.5-66.0)	164 (136-200)	270 (232-314)	1914
Gender							
Males	05-06	2.38 (1.92-2.95)	1.84 (1.42-2.46)	9.52 (6.79-12.8)	40.5 (31.1-51.5)	90.8 (56.8-125)	1270
	07-08	2.55 (2.06-3.15)	1.74 (1.40-2.53)	10.7 (5.99-15.4)	44.7 (29.0-66.1)	112 (77.4-144)	1294
	09-10	2.48 (2.05-3.00)	1.71 (1.35-2.25)	8.85 (6.12-14.2)	40.3 (33.8-57.6)	105 (74.5-143)	1399
Females	05-06	23.9 (19.9-28.8)	34.9 (26.9-46.6)	114 (101-132)	235 (193-263)	306 (277-342)	1278
	07-08	22.0 (18.7-25.8)	30.4 (25.2-36.3)	93.3 (80.8-110)	199 (161-245)	302 (271-370)	1310
	09-10	20.4 (17.8-23.3)	25.7 (21.8-30.7)	97.1 (81.8-115)	223 (191-248)	334 (295-389)	1350
Race/ethnicity							
Mexican Americans	05-06	9.49 (7.29-12.4)	11.0 (6.69-16.4)	55.2 (44.9-79.6)	186 (147-271)	329 (194-441)	637
	07-08	7.63 (5.72-10.2)	6.60 (4.10-13.4)	47.9 (39.5-66.7)	162 (123-187)	273 (187-304)	531
	09-10	8.87 (7.42-10.6)	7.97 (5.87-12.8)	54.7 (42.3-73.8)	184 (140-269)	325 (221-575)	566
Non-Hispanic blacks	05-06	18.8 (15.2-23.3)	23.6 (19.0-30.8)	83.7 (61.8-105)	217 (169-255)	318 (242-377)	678
	07-08	16.6 (14.1-19.5)	22.9 (18.0-27.2)	64.2 (51.4-73.3)	141 (117-172)	254 (169-311)	597
	09-10	18.9 (15.2-23.5)	21.1 (18.2-27.7)	80.9 (59.5-109)	200 (151-249)	301 (223-376)	516
Non-Hispanic whites	05-06	6.53 (5.32-8.02)	6.45 (3.96-9.11)	47.4 (32.6-65.3)	146 (119-184)	241 (184-278)	1038
	07-08	6.77 (5.14-8.93)	5.81 (3.94-10.5)	45.4 (32.2-61.4)	132 (105-172)	215 (169-295)	1077
	09-10	6.00 (5.19-6.94)	5.12 (4.05-6.25)	37.8 (32.1-49.2)	148 (115-183)	242 (215-272)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary n-Propyl paraben (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.16 (5.42-6.99)	5.35 (3.97-7.07)	36.7 (31.1-42.2)	129 (105-162)	215 (183-321)	2487
	13-14	5.74 (5.10-6.46)	4.75 (3.81-5.91)	36.7 (30.3-41.9)	124 (99.0-148)	222 (186-253)	2684
Age group							
6-11 years	11-12	3.18 (2.62-3.87)	2.09 (1.58-3.16)	9.11 (5.71-12.2)	37.0 (19.8-53.1)	116 (43.6-202)	395
	13-14	3.74 (2.84-4.94)	2.73 (1.75-4.00)	10.9 (7.00-18.3)	40.5 (24.4-98.6)	153 (52.1-271)	409
12-19 years	11-12	3.60 (2.75-4.70)	2.46 (1.93-3.52)	14.9 (9.36-24.9)	69.8 (32.3-130)	133 (75.6-202)	388
	13-14	4.18 (3.24-5.39)	2.82 (2.03-4.46)	20.7 (9.86-39.0)	76.0 (56.4-102)	118 (94.2-197)	462
20 years and older	11-12	7.17 (6.22-8.27)	7.28 (5.23-9.77)	45.7 (38.1-51.6)	152 (117-183)	258 (190-365)	1704
	13-14	6.30 (5.61-7.08)	5.71 (4.40-7.22)	41.8 (35.9-47.8)	138 (112-166)	231 (199-259)	1813
Gender							
Males	11-12	2.29 (1.90-2.75)	1.38 (1.21-1.67)	7.39 (6.02-9.39)	46.2 (28.5-72.7)	94.5 (57.3-190)	1258
	13-14	2.19 (1.87-2.56)	1.35 (1.17-1.59)	7.42 (5.24-8.93)	42.2 (32.3-52.2)	110 (78.9-141)	1284
Females	11-12	16.0 (13.9-18.4)	20.9 (16.7-25.7)	74.7 (62.3-88.7)	185 (164-213)	345 (239-426)	1229
	13-14	14.4 (12.1-17.2)	17.5 (13.2-22.3)	65.9 (56.9-82.9)	198 (152-226)	281 (237-338)	1400
Race/ethnicity							
Mexican Americans	11-12	6.93 (4.57-10.5)	7.19 (3.71-10.9)	40.5 (24.4-75.9)	159 (90.0-236)	315 (159-536)	316
	13-14	7.90 (5.27-11.9)	6.75 (3.60-16.0)	52.7 (30.9-67.2)	134 (89.0-205)	231 (158-284)	438
Non-Hispanic blacks	11-12	12.8 (11.3-14.4)	13.9 (11.3-18.0)	54.5 (43.4-65.7)	140 (105-185)	207 (166-333)	665
	13-14	11.4 (10.0-12.9)	10.8 (7.87-13.9)	56.0 (44.6-67.6)	137 (108-186)	233 (191-274)	609
Non-Hispanic whites	11-12	5.06 (4.35-5.88)	3.20 (2.50-5.06)	31.1 (27.3-37.1)	120 (88.2-164)	213 (164-345)	811
	13-14	4.69 (4.01-5.48)	3.58 (2.66-4.63)	29.2 (22.9-36.2)	112 (81.6-158)	212 (165-259)	987
All Hispanics	11-12	7.70 (5.99-9.90)	7.47 (5.00-10.1)	51.5 (35.2-72.9)	162 (119-196)	318 (185-473)	571
	13-14	7.67 (5.91-9.97)	6.40 (4.71-10.3)	46.5 (35.4-61.9)	139 (109-205)	240 (173-285)	690
Asians	11-12	6.80 (5.47-8.45)	6.90 (3.41-13.7)	46.5 (35.6-59.5)	136 (94.4-188)	222 (168-304)	352
	13-14	5.54 (4.23-7.26)	5.22 (2.70-8.39)	43.9 (31.4-57.0)	104 (87.0-137)	153 (113-250)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Parabens_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Parabens_FactSheet.html

Urinary 2,4-Dichlorophenol (2003 – 2010)

Metabolite of other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	1.04 (.895-1.21)	.900 (.800-1.10)	2.70 (2.30-3.10)	8.80 (6.60-11.9)	21.3 (14.1-29.5)	2525
	05-06	.945 (.791-1.13)	.800 (.700-1.00)	2.00 (1.60-2.40)	4.90 (3.90-6.30)	11.9 (7.00-20.4)	2548
	07-08	.970 (.852-1.11)	.800 (.700-.900)	1.80 (1.50-2.30)	5.10 (3.80-7.60)	12.6 (9.00-18.1)	2604
	09-10	.803 (.729-.885)	.700 (.700-.800)	1.50 (1.40-1.70)	4.00 (3.30-5.00)	8.80 (6.40-15.7)	2749
Age group							
6-11 years	03-04	1.01 (.796-1.28)	.800 (.600-1.20)	2.30 (1.70-3.20)	7.70 (3.80-20.1)	23.5 (9.40-31.0)	314
	05-06	1.01 (.879-1.15)	.800 (.800-1.10)	2.00 (1.60-2.30)	4.90 (3.30-6.60)	9.80 (6.30-17.6)	356
	07-08	1.04 (.778-1.39)	.900 (.700-1.20)	1.80 (1.20-2.80)	5.90 (2.90-10.1)	11.4 (6.60-20.7)	389
	09-10	.975 (.768-1.24)	.700 (.600-.900)	1.80 (1.40-2.30)	5.00 (3.20-8.40)	14.2 (4.40-90.9)	415
12-19 years	03-04	1.27 (.971-1.67)	1.10 (.800-1.50)	3.40 (2.50-5.00)	13.6 (6.10-25.5)	31.5 (14.5-85.0)	722
	05-06	1.18 (.997-1.39)	1.00 (.900-1.20)	2.50 (2.00-3.10)	5.50 (4.00-8.30)	13.9 (7.10-33.6)	702
	07-08	1.19 (.989-1.44)	1.10 (.800-1.40)	2.60 (2.00-3.00)	5.60 (3.10-10.8)	11.6 (5.70-36.5)	401
	09-10	.967 (.794-1.18)	.800 (.700-.900)	1.60 (1.40-2.70)	5.80 (3.70-10.1)	14.4 (7.10-24.8)	420
20 years and older	03-04	1.01 (.874-1.17)	.900 (.700-1.10)	2.60 (2.20-3.00)	8.50 (6.60-10.4)	19.4 (12.2-27.0)	1489
	05-06	.907 (.737-1.12)	.800 (.600-1.00)	2.00 (1.50-2.40)	4.90 (3.70-6.40)	11.1 (6.50-20.9)	1490
	07-08	.932 (.820-1.06)	.800 (.700-.900)	1.70 (1.40-2.20)	5.00 (3.80-7.60)	13.2 (9.20-18.1)	1814
	09-10	.764 (.699-.836)	.700 (.600-.700)	1.40 (1.30-1.60)	3.60 (3.10-4.50)	8.00 (5.60-13.9)	1914
Gender							
Males	03-04	1.22 (1.02-1.45)	1.10 (.800-1.50)	3.00 (2.50-3.50)	9.40 (6.80-13.9)	22.7 (13.6-40.9)	1231
	05-06	1.16 (.973-1.37)	1.00 (.900-1.20)	2.40 (2.00-2.80)	5.50 (4.40-7.90)	12.9 (7.30-25.3)	1270
	07-08	1.06 (.943-1.19)	.900 (.800-1.00)	1.90 (1.60-2.20)	5.40 (3.90-8.20)	13.6 (10.1-18.1)	1294
	09-10	.879 (.789-.979)	.800 (.700-.800)	1.60 (1.40-1.80)	4.00 (3.20-5.70)	10.4 (5.20-18.4)	1399
Females	03-04	.896 (.754-1.07)	.800 (.600-.900)	2.30 (2.00-2.70)	8.10 (5.70-11.1)	19.8 (12.0-27.5)	1294
	05-06	.779 (.637-.954)	.700 (.500-.800)	1.50 (1.30-2.10)	4.30 (2.80-6.20)	9.40 (5.40-19.6)	1278
	07-08	.893 (.750-1.06)	.700 (.600-.800)	1.80 (1.20-2.50)	4.70 (3.10-8.00)	11.9 (7.60-18.6)	1310
	09-10	.737 (.659-.824)	.600 (.600-.700)	1.40 (1.30-1.70)	4.00 (3.00-5.50)	7.80 (5.80-15.8)	1350
Race/ethnicity							
Mexican Americans	03-04	1.94 (1.46-2.56)	1.70 (1.20-2.10)	4.50 (2.80-9.30)	26.9 (12.7-52.1)	66.0 (47.5-84.2)	617
	05-06	1.97 (1.49-2.59)	1.60 (1.20-2.10)	5.00 (3.30-6.60)	20.9 (8.80-39.7)	46.5 (21.9-79.5)	637
	07-08	1.59 (.969-2.60)	1.20 (.600-2.60)	4.20 (2.10-9.50)	13.4 (7.90-29.6)	38.0 (16.4-74.0)	531
	09-10	1.25 (.860-1.81)	.900 (.700-1.30)	2.70 (1.60-4.30)	11.3 (4.30-26.3)	29.1 (7.60-76.3)	566
Non-Hispanic blacks	03-04	2.42 (1.92-3.06)	2.20 (1.70-2.70)	7.40 (4.00-9.60)	20.8 (11.2-38.3)	49.2 (24.0-69.7)	636
	05-06	2.45 (1.93-3.12)	2.10 (1.70-2.40)	5.20 (3.90-7.40)	20.3 (10.6-36.9)	42.6 (21.3-129)	678
	07-08	1.73 (1.49-2.01)	1.40 (1.10-1.60)	3.70 (2.90-4.90)	17.8 (9.70-25.8)	37.7 (24.6-56.8)	597
	09-10	1.54 (1.06-2.23)	1.20 (.800-2.00)	3.10 (2.10-4.80)	12.4 (4.30-46.4)	35.2 (7.80-107)	516
Non-Hispanic whites	03-04	.837 (.698-1.00)	.700 (.600-.900)	2.10 (1.70-2.60)	6.20 (4.00-8.80)	13.4 (8.60-22.0)	1077
	05-06	.734 (.610-.883)	.700 (.500-.900)	1.40 (1.20-1.80)	3.10 (2.70-3.90)	5.30 (4.30-7.90)	1038
	07-08	.817 (.732-.911)	.700 (.600-.800)	1.50 (1.20-1.80)	3.10 (2.60-4.40)	6.40 (4.60-8.80)	1077
	09-10	.651 (.594-.712)	.600 (.500-.700)	1.30 (1.10-1.40)	2.80 (2.20-3.50)	5.60 (3.80-7.40)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.17, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenol (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.695 (.619-.781)	.600 (.600-.700)	1.30 (1.10-1.60)	3.50 (2.80-4.40)	9.00 (5.60-13.0)	2489
	13-14	.669 (.603-.743)	.600 (.500-.700)	1.30 (1.20-1.40)	3.00 (2.70-3.50)	6.40 (4.80-11.5)	2686
Age group							
6-11 years	11-12	.672 (.558-.810)	.600 (.400-.700)	1.10 (1.00-1.40)	3.60 (1.90-5.50)	11.3 (4.10-23.2)	396
	13-14	.773 (.646-.925)	.700 (.600-.900)	1.20 (1.10-1.60)	2.90 (2.10-4.80)	8.90 (3.30-21.8)	409
12-19 years	11-12	.711 (.591-.857)	.600 (.500-.800)	1.30 (1.00-1.50)	3.30 (2.10-5.80)	9.00 (4.10-13.0)	388
	13-14	.668 (.576-.775)	.600 (.500-.700)	1.10 (.900-1.40)	2.40 (1.70-4.40)	7.30 (3.10-13.8)	462
20 years and older	11-12	.695 (.613-.789)	.600 (.500-.700)	1.30 (1.10-1.60)	3.50 (2.80-4.60)	9.00 (5.20-13.1)	1705
	13-14	.659 (.593-.732)	.600 (.500-.700)	1.30 (1.20-1.40)	3.10 (2.70-3.50)	6.20 (4.90-10.8)	1815
Gender							
Males	11-12	.717 (.641-.802)	.600 (.600-.700)	1.30 (1.10-1.60)	3.20 (2.20-4.40)	7.10 (4.60-10.6)	1259
	13-14	.708 (.637-.786)	.600 (.600-.700)	1.30 (1.10-1.60)	2.90 (2.60-3.30)	6.20 (4.10-11.3)	1285
Females	11-12	.675 (.581-.784)	.600 (.500-.700)	1.20 (1.00-1.60)	3.80 (2.80-6.00)	11.1 (4.90-24.3)	1230
	13-14	.635 (.553-.729)	.600 (.500-.700)	1.20 (1.10-1.40)	3.10 (2.50-4.10)	7.60 (4.40-12.3)	1401
Race/ethnicity							
Mexican Americans	11-12	.895 (.720-1.11)	.800 (.600-1.00)	1.80 (1.30-2.60)	6.60 (3.50-10.5)	14.5 (7.40-27.0)	316
	13-14	.807 (.609-1.07)	.600 (.400-1.00)	1.70 (1.10-2.90)	4.00 (3.00-12.2)	14.6 (3.90-49.9)	438
Non-Hispanic blacks	11-12	1.23 (.965-1.57)	.900 (.800-1.20)	2.20 (1.60-3.30)	6.90 (4.20-14.8)	25.0 (8.40-53.6)	665
	13-14	1.11 (.791-1.54)	.800 (.700-1.10)	2.00 (1.40-3.30)	8.20 (3.00-28.2)	23.5 (6.50-81.9)	609
Non-Hispanic whites	11-12	.577 (.514-.647)	.500 (.500-.600)	1.00 (.900-1.20)	2.50 (1.70-3.70)	4.90 (3.30-9.40)	813
	13-14	.588 (.525-.659)	.500 (.500-.600)	1.10 (1.00-1.30)	2.60 (2.30-2.90)	4.60 (3.10-5.50)	988
All Hispanics	11-12	.981 (.760-1.27)	.800 (.600-1.00)	2.10 (1.30-3.10)	6.10 (3.90-13.0)	15.9 (7.00-42.0)	571
	13-14	.786 (.641-.965)	.600 (.500-.800)	1.60 (1.20-2.10)	3.50 (3.10-7.80)	12.4 (4.20-26.1)	690
Asians	11-12	.621 (.478-.807)	.500 (.400-.700)	1.10 (.800-1.60)	3.60 (1.70-7.10)	11.1 (3.50-17.7)	352
	13-14	.567 (.435-.738)	.500 (.300-.700)	1.20 (.800-1.60)	2.70 (1.70-5.80)	7.30 (2.50-58.9)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenol (creatinine corrected) (2003 – 2010)

Metabolite of other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	1.02 (.873-1.18)	.880 (.770-1.00)	2.19 (1.84-2.73)	7.39 (5.00-9.83)	15.4 (11.1-20.9)	2522
	05-06	.922 (.798-1.06)	.750 (.660-.880)	1.58 (1.33-1.86)	4.00 (3.00-5.71)	8.90 (5.98-16.6)	2548
	07-08	.978 (.867-1.10)	.790 (.700-.880)	1.63 (1.36-1.89)	4.00 (3.14-5.63)	11.7 (6.82-18.9)	2604
	09-10	.838 (.757-.929)	.680 (.630-.740)	1.33 (1.18-1.58)	3.48 (2.77-4.55)	8.17 (5.44-14.3)	2749
Age group							
6-11 years	03-04	1.23 (.965-1.56)	1.03 (.750-1.45)	2.39 (1.82-3.36)	9.29 (3.98-16.5)	20.9 (12.9-38.1)	314
	05-06	1.11 (.950-1.29)	.970 (.800-1.08)	1.74 (1.38-2.19)	4.38 (3.33-7.80)	10.9 (5.12-23.3)	356
	07-08	1.28 (1.00-1.63)	1.06 (.750-1.40)	2.06 (1.44-3.21)	4.49 (3.13-9.27)	11.2 (5.70-24.4)	389
	09-10	1.27 (.986-1.64)	.930 (.820-1.20)	2.03 (1.54-2.94)	5.89 (3.50-11.0)	15.9 (5.71-121)	415
12-19 years	03-04	.954 (.725-1.26)	.790 (.660-1.00)	2.08 (1.44-3.75)	8.02 (4.72-12.5)	14.8 (8.02-40.0)	720
	05-06	.878 (.765-1.01)	.700 (.600-.800)	1.65 (1.22-1.93)	3.92 (2.90-4.82)	8.28 (4.82-15.9)	702
	07-08	.927 (.776-1.11)	.790 (.640-1.00)	1.51 (1.14-2.22)	3.81 (2.38-5.92)	10.3 (4.28-21.8)	401
	09-10	.778 (.656-.921)	.580 (.510-.690)	1.18 (.970-1.40)	3.38 (2.11-6.27)	7.38 (3.39-19.4)	420
20 years and older	03-04	1.00 (.863-1.16)	.870 (.770-1.00)	2.17 (1.80-2.69)	7.16 (4.88-9.01)	15.0 (10.6-20.8)	1488
	05-06	.909 (.774-1.07)	.740 (.650-.870)	1.55 (1.25-1.89)	4.00 (2.84-6.19)	8.80 (5.71-16.8)	1490
	07-08	.958 (.847-1.08)	.770 (.670-.880)	1.60 (1.32-1.85)	3.98 (3.14-5.59)	12.1 (8.15-18.9)	1814
	09-10	.810 (.735-.892)	.670 (.620-.730)	1.27 (1.11-1.56)	3.33 (2.65-4.23)	7.64 (5.16-12.3)	1914
Gender							
Males	03-04	.995 (.850-1.17)	.900 (.730-1.06)	2.23 (1.82-2.82)	6.84 (4.54-9.01)	13.7 (9.29-21.8)	1230
	05-06	.927 (.814-1.06)	.770 (.670-.880)	1.60 (1.36-1.86)	4.12 (3.08-5.45)	8.90 (5.19-16.6)	1270
	07-08	.891 (.808-.984)	.720 (.660-.790)	1.44 (1.29-1.67)	4.00 (2.97-5.30)	9.96 (6.82-13.4)	1294
	09-10	.788 (.706-.879)	.620 (.580-.660)	1.25 (1.06-1.48)	3.66 (2.52-5.47)	7.69 (4.84-16.9)	1399
Females	03-04	1.03 (.845-1.27)	.870 (.770-1.00)	2.17 (1.73-2.73)	8.00 (4.57-12.1)	17.2 (11.1-23.7)	1292
	05-06	.916 (.770-1.09)	.740 (.640-.880)	1.56 (1.19-1.96)	3.91 (2.66-6.50)	8.93 (5.53-23.7)	1278
	07-08	1.07 (.910-1.26)	.850 (.720-1.00)	1.75 (1.43-2.29)	4.07 (3.13-7.65)	14.4 (6.50-26.8)	1310
	09-10	.890 (.789-1.00)	.740 (.660-.850)	1.41 (1.24-1.67)	3.39 (2.76-4.52)	8.79 (5.16-14.8)	1350
Race/ethnicity							
Mexican Americans	03-04	1.76 (1.30-2.38)	1.33 (1.04-1.74)	3.85 (2.29-8.81)	23.8 (10.6-51.6)	71.4 (30.8-88.8)	616
	05-06	1.77 (1.38-2.27)	1.25 (.990-1.73)	3.79 (2.70-5.35)	16.6 (6.75-31.8)	38.1 (23.8-55.3)	637
	07-08	1.55 (.925-2.60)	1.18 (.630-2.28)	3.33 (1.93-6.50)	14.2 (5.65-30.6)	33.1 (16.6-60.0)	531
	09-10	1.24 (.860-1.78)	.910 (.630-1.28)	2.03 (1.43-3.90)	11.0 (3.54-26.4)	26.4 (10.2-93.5)	566
Non-Hispanic blacks	03-04	1.66 (1.28-2.16)	1.47 (1.06-1.96)	4.14 (2.46-7.31)	14.9 (7.93-20.1)	22.9 (16.7-45.0)	635
	05-06	1.72 (1.39-2.14)	1.32 (1.11-1.56)	3.28 (2.33-5.35)	14.9 (7.40-28.1)	37.0 (15.0-83.4)	678
	07-08	1.34 (1.14-1.59)	.990 (.800-1.17)	2.36 (1.85-3.12)	13.1 (5.70-23.3)	33.8 (22.7-41.1)	597
	09-10	1.11 (.739-1.67)	.890 (.630-1.19)	2.07 (1.25-3.87)	8.37 (2.99-22.0)	22.0 (7.05-83.1)	516
Non-Hispanic whites	03-04	.864 (.721-1.03)	.780 (.690-.890)	1.86 (1.54-2.23)	5.08 (3.58-8.00)	10.8 (6.84-18.2)	1076
	05-06	.772 (.660-.904)	.670 (.580-.790)	1.25 (1.07-1.56)	2.78 (2.11-3.52)	4.82 (3.33-8.62)	1038
	07-08	.853 (.765-.950)	.730 (.660-.810)	1.36 (1.14-1.67)	2.97 (2.53-3.33)	5.16 (3.84-9.38)	1077
	09-10	.731 (.674-.793)	.630 (.580-.690)	1.13 (1.01-1.25)	2.76 (2.29-3.30)	5.16 (3.79-6.46)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenol (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.791 (.706-.886)	.614 (.560-.690)	1.29 (1.08-1.48)	3.33 (2.67-4.57)	8.10 (5.65-11.2)	2487
	13-14	.668 (.611-.730)	.556 (.510-.595)	1.13 (1.03-1.29)	2.73 (2.26-3.33)	5.96 (4.41-8.38)	2684
Age group							
6-11 years	11-12	.964 (.807-1.15)	.741 (.620-.851)	1.38 (1.07-1.61)	3.51 (2.22-7.36)	12.4 (5.13-34.9)	395
	13-14	.977 (.833-1.14)	.800 (.698-.909)	1.52 (1.20-1.94)	3.41 (2.22-6.60)	9.68 (4.48-23.7)	409
12-19 years	11-12	.693 (.582-.825)	.545 (.465-.678)	1.15 (.875-1.50)	2.73 (1.96-4.00)	4.82 (3.06-9.75)	388
	13-14	.542 (.472-.623)	.439 (.385-.519)	.833 (.678-1.13)	1.72 (1.31-3.08)	4.10 (2.45-5.27)	462
20 years and older	11-12	.790 (.694-.898)	.610 (.556-.675)	1.30 (1.07-1.54)	3.33 (2.55-4.77)	8.33 (5.75-11.3)	1704
	13-14	.661 (.600-.728)	.538 (.495-.588)	1.14 (.991-1.31)	2.77 (2.22-3.47)	5.96 (4.39-8.53)	1813
Gender							
Males	11-12	.670 (.594-.756)	.538 (.462-.609)	1.08 (.903-1.27)	2.89 (2.10-3.46)	5.65 (4.26-7.63)	1258
	13-14	.595 (.550-.642)	.496 (.455-.538)	1.03 (.906-1.12)	2.41 (2.11-2.77)	4.39 (3.06-7.65)	1284
Females	11-12	.928 (.816-1.06)	.714 (.634-.833)	1.45 (1.27-1.76)	4.02 (3.06-6.37)	11.2 (6.37-18.1)	1229
	13-14	.747 (.667-.836)	.616 (.560-.676)	1.29 (1.11-1.43)	3.29 (2.37-4.15)	7.69 (4.69-12.6)	1400
Race/ethnicity							
Mexican Americans	11-12	1.01 (.856-1.19)	.788 (.620-1.04)	1.67 (1.50-2.14)	5.94 (3.50-9.36)	14.7 (6.16-33.3)	316
	13-14	.823 (.614-1.10)	.632 (.452-.864)	1.43 (.938-2.29)	6.25 (2.45-12.0)	13.5 (6.32-37.3)	438
Non-Hispanic blacks	11-12	.959 (.766-1.20)	.737 (.588-.851)	1.56 (1.18-2.34)	5.26 (3.00-15.0)	19.9 (6.61-40.7)	665
	13-14	.815 (.617-1.08)	.576 (.500-.704)	1.40 (.952-2.30)	5.32 (2.37-14.7)	15.4 (4.69-51.3)	609
Non-Hispanic whites	11-12	.700 (.609-.805)	.563 (.519-.619)	1.08 (.885-1.33)	2.89 (1.79-3.78)	5.75 (3.27-9.67)	811
	13-14	.615 (.557-.679)	.521 (.476-.570)	1.05 (.906-1.24)	2.22 (1.88-2.78)	3.64 (3.01-5.71)	987
All Hispanics	11-12	1.10 (.919-1.31)	.870 (.700-1.12)	2.00 (1.54-2.72)	5.70 (3.96-9.26)	14.7 (6.37-43.5)	571
	13-14	.780 (.628-.970)	.629 (.508-.774)	1.30 (.980-1.98)	4.48 (3.03-6.81)	11.1 (6.16-23.8)	690
Asians	11-12	.832 (.629-1.10)	.667 (.513-.952)	1.42 (1.01-2.12)	3.50 (2.31-7.82)	8.00 (3.50-17.0)	352
	13-14	.720 (.540-.961)	.588 (.469-.813)	1.38 (1.06-1.71)	3.51 (1.95-6.78)	7.65 (2.54-54.1)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/24D_BiomonitoringSummary.html

Urinary 2,5-Dichlorophenol (2003 – 2010)

Metabolite of 1,4-Dichlorobenzene (Paradichlorobenzene) and other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	12.9 (10.1-16.3)	10.5 (8.00-14.2)	40.9 (29.8-54.7)	190 (133-282)	705 (342-1330)	2525
	05-06	9.55 (6.67-13.7)	8.10 (5.60-11.5)	26.4 (19.0-36.6)	111 (69.9-166)	332 (175-794)	2548
	07-08	9.04 (7.22-11.3)	6.60 (5.50-8.30)	25.7 (19.2-34.7)	131 (90.2-222)	473 (296-753)	2604
	09-10	6.10 (4.94-7.53)	4.70 (3.70-5.90)	18.4 (13.3-26.0)	101 (68.0-146)	301 (168-618)	2749
Age group							
6-11 years	03-04	12.5 (8.22-18.9)	9.10 (5.60-17.4)	42.1 (21.7-83.9)	161 (111-626)	928 (249-1640)	314
	05-06	10.5 (8.29-13.4)	7.80 (5.90-10.6)	28.1 (17.8-40.2)	104 (55.4-226)	336 (189-785)	356
	07-08	9.31 (6.20-14.0)	6.50 (4.60-10.9)	23.3 (12.2-45.6)	151 (61.1-306)	464 (222-934)	389
	09-10	7.19 (4.36-11.8)	4.80 (2.70-9.90)	30.4 (12.4-50.7)	146 (63.7-368)	503 (103-4940)	415
12-19 years	03-04	16.9 (11.1-26.0)	11.5 (8.20-20.6)	49.9 (26.8-94.0)	233 (94.5-1060)	1080 (287-3970)	722
	05-06	11.9 (8.47-16.8)	9.60 (6.40-16.7)	36.0 (22.3-54.4)	127 (89.9-160)	459 (160-894)	702
	07-08	11.3 (8.78-14.5)	7.40 (6.20-9.10)	30.1 (18.5-52.6)	193 (66.7-448)	611 (254-1560)	401
	09-10	8.01 (5.53-11.6)	4.80 (3.50-8.80)	24.9 (19.1-42.7)	191 (61.2-368)	526 (243-1140)	420
20 years and older	03-04	12.3 (9.97-15.3)	10.4 (8.00-14.0)	40.5 (30.1-49.2)	181 (141-250)	583 (316-924)	1489
	05-06	9.12 (6.15-13.5)	7.80 (5.20-11.5)	24.9 (17.3-35.3)	110 (62.9-183)	327 (159-852)	1490
	07-08	8.71 (6.83-11.1)	6.60 (5.10-8.70)	24.6 (18.8-34.5)	124 (95.9-186)	452 (286-672)	1814
	09-10	5.75 (4.77-6.92)	4.60 (3.70-5.70)	16.9 (12.7-23.1)	88.4 (66.4-117)	266 (156-450)	1914
Gender							
Males	03-04	14.9 (11.8-18.8)	12.5 (9.00-16.5)	40.5 (30.7-54.5)	152 (120-259)	631 (259-1950)	1231
	05-06	12.0 (8.55-16.7)	9.90 (7.80-13.8)	29.0 (21.8-40.5)	114 (71.7-200)	396 (175-916)	1270
	07-08	10.9 (8.86-13.4)	8.30 (6.30-9.90)	29.4 (23.2-39.6)	139 (100-248)	546 (311-727)	1294
	09-10	7.09 (5.68-8.85)	5.30 (4.40-6.70)	21.9 (15.2-33.5)	103 (63.3-191)	311 (133-736)	1399
Females	03-04	11.2 (8.51-14.7)	8.50 (6.30-12.0)	42.8 (26.0-64.2)	212 (141-364)	732 (371-1100)	1294
	05-06	7.69 (5.17-11.4)	5.90 (3.90-9.40)	21.1 (14.3-35.7)	110 (60.5-183)	317 (141-794)	1278
	07-08	7.57 (5.70-10.1)	5.50 (4.40-7.30)	20.6 (13.9-31.8)	118 (57.4-268)	442 (213-838)	1310
	09-10	5.28 (4.17-6.69)	3.90 (3.00-5.10)	16.7 (12.1-22.1)	99.5 (58.2-156)	287 (158-591)	1350
Race/ethnicity							
Mexican Americans	03-04	30.1 (19.2-47.2)	23.7 (14.7-39.8)	103 (57.4-156)	841 (282-2040)	2370 (2040-3710)	617
	05-06	32.2 (22.2-46.7)	23.0 (14.9-37.1)	120 (69.6-228)	867 (298-1320)	1630 (916-3650)	637
	07-08	22.2 (9.88-49.8)	16.4 (5.40-60.7)	104 (35.2-364)	566 (313-1710)	1920 (672-3460)	531
	09-10	13.0 (5.80-29.1)	10.3 (3.30-26.2)	53.6 (19.4-199)	361 (124-900)	998 (247-3700)	566
Non-Hispanic blacks	03-04	54.0 (35.9-81.2)	43.9 (26.2-65.6)	159 (97.0-338)	817 (342-2330)	2330 (887-3730)	636
	05-06	43.9 (33.2-58.1)	33.2 (25.3-47.6)	161 (79.9-255)	722 (360-1370)	1700 (886-6440)	678
	07-08	27.4 (21.3-35.2)	18.5 (13.2-26.7)	102 (61.9-147)	682 (364-943)	1490 (933-1870)	597
	09-10	23.0 (13.0-40.8)	17.3 (8.00-42.7)	82.7 (38.6-168)	443 (119-2180)	1240 (273-4940)	516
Non-Hispanic whites	03-04	8.94 (7.15-11.2)	7.80 (6.30-9.40)	25.9 (19.3-36.6)	115 (61.8-171)	255 (148-522)	1077
	05-06	6.19 (4.18-9.17)	5.90 (3.80-9.20)	15.7 (11.4-21.9)	43.7 (31.2-73.1)	105 (62.2-166)	1038
	07-08	6.24 (5.04-7.74)	5.10 (4.20-6.20)	15.4 (12.2-19.9)	49.8 (37.0-90.2)	142 (103-294)	1077
	09-10	4.10 (3.22-5.21)	3.30 (2.60-4.40)	10.9 (8.10-15.5)	45.5 (29.0-82.7)	124 (79.3-215)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.12, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html

Urinary 2,5-Dichlorophenol (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.21 (3.15-5.62)	3.10 (2.30-3.90)	13.4 (9.40-18.9)	69.9 (40.9-117)	213 (121-404)	2489
	13-14	2.78 (2.15-3.59)	1.80 (1.40-2.50)	7.50 (5.30-11.4)	37.7 (23.8-58.0)	148 (78.4-266)	2686
Age group							
6-11 years	11-12	3.45 (2.11-5.64)	2.30 (1.60-3.30)	9.20 (4.40-21.2)	69.1 (27.8-168)	369 (99.9-986)	396
	13-14	2.90 (1.98-4.24)	2.00 (1.30-3.00)	8.20 (4.30-14.9)	29.6 (19.7-73.8)	123 (38.0-438)	409
12-19 years	11-12	4.15 (2.43-7.10)	3.20 (1.60-8.00)	14.0 (7.30-28.8)	55.7 (28.6-209)	236 (71.2-468)	388
	13-14	2.72 (1.75-4.24)	2.10 (1.30-3.30)	6.00 (3.80-14.0)	21.7 (10.6-77.7)	77.7 (21.7-315)	462
20 years and older	11-12	4.31 (3.21-5.78)	3.20 (2.30-4.10)	14.2 (9.40-19.2)	71.4 (39.5-118)	198 (118-408)	1705
	13-14	2.78 (2.20-3.51)	1.80 (1.40-2.40)	7.80 (5.50-11.5)	42.7 (25.2-61.2)	169 (87.2-308)	1815
Gender							
Males	11-12	4.42 (3.38-5.78)	3.30 (2.40-4.50)	13.2 (9.40-20.8)	55.5 (37.1-106)	194 (99.8-341)	1259
	13-14	2.96 (2.31-3.80)	2.00 (1.50-2.60)	7.20 (5.20-11.5)	36.1 (23.1-52.6)	175 (77.6-250)	1285
Females	11-12	4.01 (2.86-5.61)	2.80 (2.00-3.70)	13.9 (9.20-17.7)	83.3 (42.4-124)	352 (117-614)	1230
	13-14	2.61 (1.96-3.48)	1.70 (1.30-2.50)	7.80 (5.20-11.9)	38.3 (21.6-63.8)	136 (63.2-376)	1401
Race/ethnicity							
Mexican Americans	11-12	5.92 (3.36-10.4)	4.00 (2.20-8.40)	21.2 (14.2-42.7)	178 (58.4-341)	362 (119-1130)	316
	13-14	4.60 (2.78-7.61)	2.70 (1.40-6.30)	14.5 (6.70-29.2)	90.5 (32.9-486)	584 (85.3-1840)	438
Non-Hispanic blacks	11-12	16.6 (10.4-26.2)	13.4 (8.80-19.4)	47.9 (24.9-100)	227 (108-569)	759 (341-2480)	665
	13-14	9.58 (5.03-18.2)	7.20 (3.90-14.2)	27.6 (15.6-70.7)	175 (51.4-874)	843 (150-3710)	609
Non-Hispanic whites	11-12	2.78 (2.13-3.63)	2.00 (1.60-2.50)	7.40 (5.40-9.70)	34.4 (18.1-67.6)	112 (52.1-178)	813
	13-14	1.95 (1.54-2.46)	1.40 (1.10-1.90)	4.70 (3.30-6.50)	19.0 (12.8-25.9)	53.7 (25.2-131)	988
All Hispanics	11-12	7.96 (4.50-14.1)	6.30 (3.20-14.9)	29.1 (16.0-66.7)	196 (84.1-399)	536 (194-1630)	571
	13-14	4.26 (2.84-6.40)	2.80 (1.50-5.00)	11.8 (7.20-22.4)	77.7 (42.7-236)	420 (112-807)	690
Asians	11-12	3.77 (2.17-6.53)	2.40 (1.40-5.40)	13.0 (5.40-43.4)	86.8 (38.6-160)	378 (86.8-810)	352
	13-14	2.66 (1.64-4.32)	1.70 (1.20-2.90)	6.20 (3.30-18.5)	50.3 (13.0-154)	154 (38.7-2450)	289

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12 and 13-14 are 0.2 and 0.1, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html

Urinary 2,5-Dichlorophenol (creatinine corrected) (2003 – 2010)

Metabolite of 1,4-Dichlorobenzene (Paradichlorobenzene) and other chlorophenols

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	12.5 (10.1-15.6)	9.29 (7.25-12.5)	34.4 (26.8-45.4)	141 (100-251)	578 (313-851)	2522
	05-06	9.31 (6.70-12.9)	7.32 (5.33-10.2)	20.4 (14.8-30.5)	89.3 (54.9-176)	292 (176-640)	2548
	07-08	9.12 (7.35-11.3)	6.24 (5.00-7.77)	24.2 (17.2-30.3)	109 (70.8-175)	409 (234-745)	2604
	09-10	6.36 (5.07-7.99)	4.12 (3.31-5.16)	16.2 (11.7-22.8)	80.2 (59.5-127)	269 (144-505)	2749
Age group							
6-11 years	03-04	15.2 (9.93-23.1)	10.6 (5.87-26.7)	44.7 (28.9-80.0)	183 (95.3-617)	830 (330-2150)	314
	05-06	11.6 (8.90-15.1)	8.00 (5.95-12.6)	24.7 (16.8-37.8)	129 (55.8-242)	419 (151-709)	356
	07-08	11.5 (7.95-16.5)	7.70 (5.41-11.7)	29.5 (19.6-50.9)	131 (59.9-239)	420 (170-1110)	389
	09-10	9.36 (5.65-15.5)	6.25 (4.09-9.60)	33.9 (12.6-65.0)	177 (66.1-496)	536 (111-5950)	415
12-19 years	03-04	12.7 (8.50-18.9)	9.05 (6.17-13.3)	34.8 (18.6-67.0)	177 (67.0-516)	549 (187-2120)	720
	05-06	8.88 (6.34-12.4)	6.91 (4.15-11.1)	23.4 (17.7-30.0)	78.0 (58.5-112)	279 (112-659)	702
	07-08	8.79 (6.81-11.4)	5.56 (4.42-7.50)	20.9 (13.8-34.9)	130 (41.8-251)	353 (158-799)	401
	09-10	6.44 (4.40-9.42)	4.05 (2.34-8.69)	19.4 (11.6-37.7)	121 (49.3-218)	257 (119-1180)	420
20 years and older	03-04	12.2 (10.1-14.8)	9.13 (7.25-12.4)	32.7 (26.7-42.9)	140 (103-203)	552 (283-838)	1488
	05-06	9.15 (6.43-13.0)	7.29 (5.29-10.0)	19.6 (14.2-30.4)	90.7 (48.5-197)	274 (163-701)	1490
	07-08	8.94 (7.07-11.3)	6.15 (4.93-8.00)	24.3 (16.6-30.6)	101 (70.0-162)	422 (234-729)	1814
	09-10	6.09 (4.97-7.45)	3.97 (3.27-4.78)	14.7 (11.0-20.5)	72.5 (56.6-97.2)	261 (141-446)	1914
Gender							
Males	03-04	12.2 (9.73-15.3)	9.65 (7.23-12.7)	32.7 (25.3-39.1)	108 (79.0-183)	358 (161-1080)	1230
	05-06	9.60 (7.17-12.9)	8.11 (5.95-10.5)	20.5 (15.9-28.2)	74.9 (50.5-141)	249 (137-534)	1270
	07-08	9.17 (7.63-11.0)	6.24 (5.22-7.81)	25.5 (19.7-32.4)	110 (70.7-167)	353 (234-572)	1294
	09-10	6.36 (5.04-8.02)	4.21 (3.36-4.97)	16.7 (11.7-24.0)	83.2 (53.7-141)	280 (111-727)	1399
Females	03-04	12.9 (9.91-16.8)	8.95 (6.98-13.2)	37.1 (26.7-56.9)	209 (124-362)	660 (408-940)	1292
	05-06	9.04 (6.18-13.2)	6.60 (4.56-10.4)	20.4 (14.1-33.8)	104 (55.8-199)	309 (149-933)	1278
	07-08	9.07 (6.91-11.9)	6.08 (4.71-8.04)	22.4 (14.7-30.6)	107 (59.2-216)	509 (185-908)	1310
	09-10	6.37 (4.92-8.25)	4.10 (3.09-5.69)	15.6 (11.3-22.1)	77.1 (53.3-148)	267 (151-481)	1350
Race/ethnicity							
Mexican Americans	03-04	27.3 (17.4-42.9)	17.8 (9.86-36.3)	79.8 (45.8-138)	809 (196-2110)	2200 (1250-2480)	616
	05-06	29.0 (20.5-41.0)	18.6 (12.9-27.3)	99.4 (61.6-165)	675 (296-1400)	1680 (718-2720)	637
	07-08	21.6 (9.44-49.6)	16.4 (5.09-58.9)	83.9 (30.8-281)	572 (182-1490)	1490 (700-2220)	531
	09-10	12.9 (5.78-28.8)	9.12 (3.38-26.7)	45.0 (17.3-236)	460 (105-1000)	1000 (380-2800)	566
Non-Hispanic blacks	03-04	37.1 (24.3-56.7)	27.4 (17.5-47.7)	103 (63.8-216)	609 (248-1210)	1240 (627-2430)	635
	05-06	30.9 (23.6-40.3)	20.5 (17.3-29.1)	104 (57.7-180)	480 (294-1080)	1480 (515-3100)	678
	07-08	21.3 (16.2-27.9)	14.6 (10.2-19.7)	64.6 (48.0-101)	529 (217-884)	1130 (793-1560)	597
	09-10	16.7 (9.19-30.2)	12.5 (6.74-22.0)	58.9 (22.3-106)	349 (92.6-878)	878 (277-3890)	516
Non-Hispanic whites	03-04	9.24 (7.48-11.4)	7.14 (5.67-8.76)	24.8 (18.7-31.7)	79.7 (50.2-141)	216 (124-516)	1076
	05-06	6.52 (4.51-9.43)	5.60 (3.86-8.51)	14.1 (10.7-19.7)	40.2 (28.4-61.6)	110 (47.3-224)	1038
	07-08	6.52 (5.26-8.07)	4.89 (3.95-6.20)	14.4 (11.4-19.2)	53.2 (40.1-75.9)	131 (82.5-249)	1077
	09-10	4.60 (3.59-5.90)	3.27 (2.77-4.10)	10.4 (7.22-15.2)	41.3 (25.0-69.1)	130 (73.4-180)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html

Urinary 2,5-Dichlorophenol (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.80 (3.65-6.32)	3.19 (2.38-4.43)	11.4 (7.97-17.9)	66.4 (39.9-125)	215 (145-342)	2487
	13-14	2.77 (2.12-3.62)	1.82 (1.43-2.40)	6.80 (4.62-9.72)	32.2 (21.9-45.5)	108 (58.4-270)	2684
Age group							
6-11 years	11-12	5.01 (3.10-8.09)	3.02 (2.00-5.00)	10.6 (5.53-21.7)	98.1 (32.9-166)	377 (125-1180)	395
	13-14	3.66 (2.50-5.36)	2.41 (1.62-3.54)	9.73 (5.25-15.6)	37.6 (16.9-110)	172 (70.4-615)	409
12-19 years	11-12	4.04 (2.51-6.52)	2.41 (1.54-5.34)	12.1 (5.67-27.6)	47.9 (26.3-99.5)	157 (55.1-324)	388
	13-14	2.21 (1.44-3.40)	1.53 (.915-2.52)	5.16 (2.63-12.0)	22.7 (12.2-38.9)	54.2 (21.7-236)	462
20 years and older	11-12	4.90 (3.67-6.56)	3.33 (2.50-4.51)	11.5 (8.04-18.0)	70.3 (38.8-136)	226 (145-342)	1704
	13-14	2.78 (2.15-3.59)	1.81 (1.44-2.29)	6.67 (4.62-9.47)	32.6 (21.1-51.0)	126 (58.4-325)	1813
Gender							
Males	11-12	4.15 (3.14-5.49)	2.87 (2.14-4.13)	9.73 (6.88-16.1)	52.8 (31.4-106)	157 (125-233)	1258
	13-14	2.49 (1.93-3.22)	1.69 (1.23-2.22)	5.49 (4.18-8.11)	27.4 (19.6-45.8)	88.7 (58.4-160)	1284
Females	11-12	5.53 (4.14-7.37)	3.39 (2.57-5.00)	13.1 (8.84-19.5)	90.1 (45.2-147)	331 (145-557)	1229
	13-14	3.07 (2.30-4.09)	1.96 (1.52-2.54)	8.22 (5.07-11.9)	33.8 (21.7-56.2)	140 (50.4-374)	1400
Race/ethnicity							
Mexican Americans	11-12	6.67 (4.04-11.0)	4.85 (2.25-8.69)	22.4 (12.6-37.6)	189 (49.2-249)	383 (213-981)	316
	13-14	4.68 (2.72-8.06)	2.47 (1.36-5.71)	14.5 (7.24-25.0)	91.8 (26.9-559)	559 (89.0-1330)	438
Non-Hispanic blacks	11-12	12.9 (8.32-19.9)	9.41 (6.35-15.1)	34.5 (18.1-75.0)	174 (83.7-567)	744 (236-1790)	665
	13-14	7.07 (3.87-12.9)	5.62 (2.55-10.4)	21.2 (10.0-54.1)	128 (32.7-527)	415 (103-2580)	609
Non-Hispanic whites	11-12	3.40 (2.57-4.49)	2.36 (1.76-3.19)	6.96 (4.70-9.67)	34.5 (16.4-80.1)	126 (55.3-232)	811
	13-14	2.03 (1.53-2.69)	1.48 (1.13-1.91)	4.15 (2.96-6.34)	18.2 (10.6-32.5)	45.8 (26.0-86.3)	987
All Hispanics	11-12	8.92 (5.45-14.6)	6.55 (3.50-13.8)	28.8 (16.6-53.6)	184 (97.2-266)	383 (213-1240)	571
	13-14	4.23 (2.77-6.47)	2.50 (1.41-5.07)	11.5 (6.84-18.7)	84.6 (32.2-226)	401 (135-993)	690
Asians	11-12	5.05 (2.93-8.69)	2.99 (1.74-7.04)	15.3 (6.51-45.6)	106 (58.7-177)	236 (97.5-632)	352
	13-14	3.40 (2.10-5.52)	2.06 (1.33-3.26)	8.99 (3.21-20.8)	45.2 (17.3-158)	207 (32.6-3020)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/25D_BiomonitoringSummary.html

Urinary Bis(1-chloro-2-propyl) phosphate (BCPP) (2013 – 2014)

Metabolite of Tris(1-chloro-2-propyl) phosphate (TCPP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.188 (.174-.202)	.160 (.140-.180)	.380 (.330-.410)	.790 (.690-.880)	1.25 (1.07-1.48)	2665
Age group							
6-11 years	13-14	.267 (.227-.314)	.250 (.200-.300)	.490 (.400-.590)	1.08 (.630-1.98)	2.12 (1.28-4.21)	421
12-19 years	13-14	.190 (.164-.220)	.160 (.130-.220)	.410 (.290-.520)	.670 (.600-.790)	1.04 (.700-1.31)	427
20 years and older	13-14	*	.150 (.130-.170)	.350 (.310-.390)	.760 (.690-.860)	1.25 (1.05-1.55)	1817
Gender							
Males	13-14	.199 (.183-.217)	.170 (.140-.200)	.420 (.360-.480)	.880 (.760-.980)	1.34 (1.17-1.67)	1344
Females	13-14	*	.150 (.130-.180)	.340 (.280-.390)	.700 (.560-.830)	1.11 (.870-1.52)	1321
Race/ethnicity							
Mexican Americans	13-14	*	.130 (<LOD-.160)	.320 (.290-.380)	.660 (.510-.910)	1.11 (.780-1.50)	428
Non-Hispanic blacks	13-14	.190 (.171-.212)	.170 (.150-.200)	.340 (.310-.390)	.690 (.580-.820)	1.01 (.820-1.23)	587
Non-Hispanic whites	13-14	.189 (.172-.208)	.150 (.130-.180)	.380 (.330-.450)	.820 (.700-.990)	1.31 (1.07-1.73)	1014
All Hispanics	13-14	*	.150 (.110-.180)	.320 (.310-.360)	.660 (.550-.780)	1.11 (.860-1.50)	671
Asians	13-14	*	.170 (.120-.210)	.400 (.310-.540)	.770 (.660-1.08)	1.30 (.850-2.26)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Bis(1-chloro-2-propyl) phosphate (BCPP) (creatinine corrected) (2013 – 2014)

Metabolite of Tris(1-chloro-2-propyl) phosphate (TCPP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.200 (.184-.218)	.187 (.173-.201)	.347 (.313-.375)	.701 (.619-.787)	1.21 (1.03-1.49)	2663
Age group							
6-11 years	13-14	.344 (.296-.399)	.349 (.292-.381)	.568 (.500-.701)	1.37 (.953-2.13)	2.41 (1.26-3.30)	421
12-19 years	13-14	.162 (.135-.194)	.159 (.130-.191)	.314 (.226-.384)	.500 (.416-.667)	.753 (.500-1.26)	427
20 years and older	13-14	*	.184 (.168-.196)	.320 (.284-.365)	.665 (.571-.769)	1.17 (.936-1.50)	1815
Gender							
Males	13-14	.182 (.165-.201)	.167 (.152-.179)	.333 (.284-.382)	.722 (.610-.842)	1.21 (1.00-1.56)	1343
Females	13-14	*	.210 (.187-.233)	.352 (.316-.390)	.688 (.560-.847)	1.26 (.921-1.53)	1320
Race/ethnicity							
Mexican Americans	13-14	*	.153 (<LOD-.189)	.318 (.259-.350)	.517 (.412-.739)	.918 (.556-1.27)	426
Non-Hispanic blacks	13-14	.146 (.124-.172)	.144 (.116-.163)	.250 (.229-.292)	.459 (.391-.550)	.727 (.574-.890)	587
Non-Hispanic whites	13-14	.214 (.195-.235)	.198 (.179-.219)	.358 (.318-.389)	.777 (.644-.965)	1.49 (1.04-1.80)	1014
All Hispanics	13-14	*	.171 (.153-.189)	.333 (.305-.350)	.556 (.470-.735)	.977 (.638-1.23)	669
Asians	13-14	*	.241 (.212-.266)	.447 (.359-.547)	.750 (.621-.944)	1.26 (.820-1.66)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary Bis(2-chloroethyl) phosphate (BCEtP) (2013 – 2014)

Metabolite of Tris(2-chloroethyl) phosphate (TCETP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.419 (.376-.466)	.390 (.350-.420)	.950 (.840-1.12)	2.31 (1.90-2.82)	3.94 (3.08-5.17)	2651
Age group							
6-11 years	13-14	.662 (.545-.804)	.660 (.500-.850)	1.50 (1.05-1.77)	2.91 (1.77-5.63)	5.63 (2.99-7.34)	418
12-19 years	13-14	.602 (.508-.713)	.570 (.450-.730)	1.47 (.950-2.21)	3.18 (2.57-3.80)	4.24 (3.76-6.40)	423
20 years and older	13-14	.378 (.339-.421)	.350 (.310-.390)	.850 (.740-.960)	2.06 (1.69-2.64)	3.55 (2.76-5.17)	1810
Gender							
Males	13-14	.458 (.401-.523)	.420 (.390-.470)	1.03 (.890-1.28)	2.46 (1.85-3.07)	4.00 (3.00-6.92)	1337
Females	13-14	.384 (.335-.439)	.350 (.310-.390)	.850 (.740-1.03)	2.28 (1.90-2.75)	3.90 (2.98-4.64)	1314
Race/ethnicity							
Mexican Americans	13-14	.502 (.397-.636)	.500 (.370-.660)	1.14 (.710-1.88)	2.70 (1.69-4.00)	4.47 (3.30-7.73)	428
Non-Hispanic blacks	13-14	.483 (.431-.541)	.400 (.380-.480)	1.03 (.820-1.26)	2.41 (1.95-2.88)	4.26 (2.84-5.60)	578
Non-Hispanic whites	13-14	.394 (.352-.441)	.360 (.310-.400)	.910 (.820-1.09)	2.28 (1.85-2.75)	3.73 (2.82-5.41)	1012
All Hispanics	13-14	.478 (.398-.575)	.470 (.390-.570)	1.06 (.770-1.52)	2.38 (1.71-3.50)	4.00 (3.01-5.35)	668
Asians	13-14	.375 (.316-.445)	.340 (.270-.400)	.770 (.620-1.14)	2.26 (1.32-3.55)	4.68 (2.79-6.93)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.08.

Urinary Bis(2-chloroethyl) phosphate (BCEtP) (creatinine corrected) (2013 – 2014)

Metabolite of Tris(2-chloroethyl) phosphate (TCETP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.447 (.396-.505)	.388 (.337-.444)	.856 (.743-.981)	2.03 (1.72-2.38)	3.94 (2.74-5.13)	2649
Age group							
6-11 years	13-14	.855 (.720-1.02)	.833 (.676-.981)	1.60 (1.18-2.12)	4.25 (3.39-5.43)	6.83 (4.97-8.99)	418
12-19 years	13-14	.516 (.429-.620)	.442 (.350-.568)	1.06 (.768-1.38)	2.33 (1.70-3.03)	4.48 (2.42-6.77)	423
20 years and older	13-14	.408 (.362-.460)	.349 (.313-.393)	.742 (.632-.875)	1.87 (1.42-2.31)	3.12 (2.38-4.69)	1808
Gender							
Males	13-14	.420 (.370-.476)	.373 (.322-.406)	.826 (.725-.954)	2.01 (1.50-2.43)	3.70 (2.44-5.50)	1336
Females	13-14	.476 (.417-.543)	.407 (.350-.467)	.909 (.742-1.04)	2.06 (1.75-2.41)	3.99 (2.61-5.26)	1313
Race/ethnicity							
Mexican Americans	13-14	.515 (.394-.672)	.477 (.343-.637)	1.01 (.665-1.47)	2.35 (1.57-3.03)	3.19 (2.43-6.34)	426
Non-Hispanic blacks	13-14	.374 (.321-.435)	.328 (.267-.450)	.732 (.630-.867)	1.56 (1.18-1.80)	2.41 (1.86-3.17)	578
Non-Hispanic whites	13-14	.446 (.393-.506)	.379 (.333-.437)	.857 (.731-1.00)	2.03 (1.64-2.44)	4.68 (2.51-5.58)	1012
All Hispanics	13-14	.495 (.406-.604)	.472 (.371-.585)	.980 (.736-1.36)	2.27 (1.69-2.75)	3.14 (2.53-3.94)	666
Asians	13-14	.477 (.412-.553)	.442 (.371-.500)	.792 (.606-1.28)	2.33 (1.51-3.46)	4.18 (2.76-9.34)	291

Urinary Bis(1,3-dichloro-2-propyl) phosphate (BDCPP) (2013 – 2014)

Metabolite of Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.856 (.750-.976)	.880 (.790-.970)	2.21 (1.90-2.57)	4.77 (3.88-5.77)	7.23 (6.07-8.60)	2646
Age group							
6-11 years	13-14	2.25 (1.82-2.77)	2.31 (1.62-2.86)	5.40 (3.69-7.33)	11.3 (7.39-14.9)	14.9 (10.8-25.4)	421
12-19 years	13-14	1.34 (1.13-1.59)	1.43 (1.23-1.74)	3.08 (2.39-3.99)	5.58 (4.02-8.18)	8.61 (5.58-9.87)	427
20 years and older	13-14	.720 (.633-.818)	.710 (.630-.830)	1.84 (1.62-2.09)	3.96 (3.14-4.75)	6.29 (4.93-7.16)	1798
Gender							
Males	13-14	.914 (.802-1.04)	.940 (.830-1.06)	2.20 (1.87-2.59)	4.49 (3.47-5.75)	7.15 (5.18-9.41)	1331
Females	13-14	.803 (.679-.949)	.820 (.690-.960)	2.25 (1.81-2.60)	5.09 (3.98-6.30)	7.48 (6.17-8.83)	1315
Race/ethnicity							
Mexican Americans	13-14	1.08 (.904-1.28)	1.16 (.900-1.54)	2.51 (1.87-3.11)	5.09 (3.63-7.48)	8.19 (5.50-11.3)	423
Non-Hispanic blacks	13-14	.975 (.873-1.09)	.960 (.860-1.12)	2.16 (1.86-2.54)	4.23 (3.43-4.94)	6.18 (5.08-7.02)	585
Non-Hispanic whites	13-14	.833 (.708-.980)	.850 (.710-.990)	2.26 (1.93-2.66)	4.93 (3.98-6.44)	7.42 (6.76-8.83)	1005
All Hispanics	13-14	.977 (.840-1.14)	1.02 (.850-1.22)	2.20 (1.76-2.61)	4.39 (3.30-5.43)	7.39 (4.83-9.07)	665
Asians	13-14	.508 (.438-.589)	.480 (.390-.610)	1.19 (.900-1.49)	3.19 (1.93-4.33)	4.62 (3.61-9.06)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.11.

Urinary Bis(1,3-dichloro-2-propyl) phosphate (BDCPP) (creatinine corrected) (2013 – 2014)

Metabolite of Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.913 (.795-1.05)	.874 (.746-1.03)	1.90 (1.58-2.22)	3.72 (2.88-4.97)	6.30 (4.77-7.93)	2644
Age group							
6-11 years	13-14	2.89 (2.38-3.51)	2.81 (2.28-3.66)	6.10 (4.42-7.98)	11.0 (8.41-14.3)	14.8 (11.2-21.1)	421
12-19 years	13-14	1.14 (.931-1.40)	1.10 (.887-1.45)	2.20 (1.75-2.57)	4.26 (2.75-6.46)	6.82 (3.43-10.5)	427
20 years and older	13-14	.777 (.682-.886)	.734 (.627-.875)	1.55 (1.37-1.77)	2.85 (2.38-3.57)	4.29 (3.29-5.29)	1796
Gender							
Males	13-14	.837 (.723-.968)	.825 (.696-.964)	1.69 (1.41-2.05)	3.07 (2.53-4.30)	4.97 (3.71-6.96)	1330
Females	13-14	.993 (.853-1.16)	.917 (.750-1.15)	2.07 (1.74-2.48)	4.26 (3.18-5.63)	7.02 (5.23-8.90)	1314
Race/ethnicity							
Mexican Americans	13-14	1.11 (.905-1.36)	1.08 (.865-1.32)	2.15 (1.62-2.86)	4.16 (3.13-5.91)	6.38 (4.69-8.48)	421
Non-Hispanic blacks	13-14	.750 (.674-.834)	.731 (.630-.842)	1.44 (1.29-1.60)	2.81 (2.21-3.54)	4.27 (3.38-5.80)	585
Non-Hispanic whites	13-14	.943 (.806-1.10)	.896 (.708-1.09)	2.00 (1.68-2.43)	3.94 (3.00-5.11)	6.77 (5.00-9.20)	1005
All Hispanics	13-14	1.01 (.862-1.19)	.977 (.833-1.19)	1.92 (1.62-2.23)	3.97 (2.87-4.69)	5.80 (4.19-7.84)	663
Asians	13-14	.648 (.554-.758)	.582 (.515-.727)	1.30 (1.01-1.62)	2.59 (1.88-4.70)	4.99 (2.78-6.91)	289

Urinary Dibenzyl phosphate (DBzP) (2013 – 2014)

Metabolite of Tribenzyl phosphate (TBzP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2665
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1817
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1344
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1321
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	428
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	671
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.05.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Dibenzyl phosphate (DBzP) (creatinine corrected) (2013 – 2014)

Metabolite of Tribenzyl phosphate (TBzP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2663
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1815
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1320
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	426
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	669
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary Dibutyl phosphate (DBuP) (2013 – 2014)

Metabolite of Tri-n-butyl phosphate (TbUP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.188 (.162-.217)	.250 (.220-.280)	.370 (.350-.400)	.520 (.490-.570)	.670 (.610-.750)	2663
Age group							
6-11 years	13-14	.272 (.203-.365)	.340 (.270-.390)	.490 (.450-.590)	.790 (.660-.980)	1.10 (.740-5.23)	421
12-19 years	13-14	.207 (.175-.244)	.270 (.240-.320)	.390 (.340-.440)	.570 (.450-.750)	.790 (.600-1.19)	427
20 years and older	13-14	.177 (.153-.206)	.230 (.200-.270)	.350 (.330-.380)	.500 (.460-.530)	.600 (.570-.650)	1815
Gender							
Males	13-14	.191 (.166-.221)	.260 (.220-.290)	.380 (.350-.410)	.530 (.500-.570)	.670 (.590-.850)	1342
Females	13-14	.184 (.157-.216)	.240 (.210-.270)	.360 (.330-.400)	.510 (.460-.580)	.670 (.590-.790)	1321
Race/ethnicity							
Mexican Americans	13-14	.187 (.145-.239)	.240 (.160-.310)	.370 (.330-.410)	.520 (.470-.590)	.700 (.570-.870)	428
Non-Hispanic blacks	13-14	.235 (.206-.268)	.300 (.280-.320)	.420 (.370-.460)	.610 (.520-.740)	.810 (.690-.980)	587
Non-Hispanic whites	13-14	.189 (.161-.222)	.250 (.210-.280)	.370 (.340-.400)	.510 (.480-.570)	.640 (.590-.740)	1012
All Hispanics	13-14	.185 (.151-.228)	.230 (.190-.280)	.360 (.330-.420)	.510 (.450-.590)	.700 (.570-.870)	671
Asians	13-14	.106 (.091-.124)	.080 (.060-.130)	.260 (.200-.310)	.380 (.340-.470)	.510 (.400-.680)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.05.

Urinary Dibutyl phosphate (DBuP) (creatinine corrected) (2013 – 2014)

Metabolite of Tri-n-butyl phosphate (TbUP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.200 (.171-.234)	.215 (.186-.246)	.357 (.321-.393)	.545 (.500-.583)	.719 (.612-.813)	2661
Age group							
6-11 years	13-14	.350 (.266-.461)	.373 (.304-.435)	.543 (.484-.660)	.909 (.682-1.47)	1.47 (.875-4.17)	421
12-19 years	13-14	.177 (.152-.205)	.191 (.157-.223)	.286 (.256-.326)	.440 (.373-.548)	.566 (.481-.619)	427
20 years and older	13-14	.192 (.163-.225)	.209 (.180-.239)	.342 (.311-.376)	.526 (.473-.565)	.651 (.570-.762)	1813
Gender							
Males	13-14	.175 (.151-.204)	.192 (.159-.227)	.308 (.278-.342)	.479 (.415-.515)	.582 (.543-.619)	1341
Females	13-14	.227 (.191-.271)	.238 (.205-.286)	.407 (.361-.444)	.585 (.542-.704)	.763 (.696-.892)	1320
Race/ethnicity							
Mexican Americans	13-14	.191 (.152-.239)	.203 (.161-.256)	.324 (.279-.383)	.526 (.436-.581)	.651 (.533-.865)	426
Non-Hispanic blacks	13-14	.181 (.157-.208)	.194 (.167-.217)	.323 (.269-.375)	.473 (.424-.519)	.609 (.519-.734)	587
Non-Hispanic whites	13-14	.214 (.179-.257)	.234 (.196-.265)	.378 (.333-.417)	.561 (.521-.617)	.762 (.617-.893)	1012
All Hispanics	13-14	.191 (.158-.231)	.200 (.174-.246)	.323 (.281-.370)	.518 (.441-.571)	.651 (.554-.864)	669
Asians	13-14	.135 (.113-.161)	.138 (.116-.162)	.265 (.212-.333)	.487 (.337-.583)	.588 (.508-.674)	291

Urinary Di-o-cresylphosphate (DoCP) (2013 – 2014)

Metabolite of Tri-o-cresylphosphate (ToCP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2665
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1817
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1344
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1321
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	428
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	671
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.05.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Di-o-cresylphosphate (DoCP) (creatinine corrected) (2013 – 2014)

Metabolite of Tri-o-cresylphosphate (ToCP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2663
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1815
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1320
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	426
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	669
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary Di-p-cresylphosphate (DpCP) (2013 – 2014)

Metabolite of Tri-p-cresylphosphate (TpCP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	.070 (.060-.080)	.110 (.090-.160)	2664
Age group							
6-11 years	13-14	*	< LOD	.060 (<LOD-.080)	.150 (.090-.210)	.240 (.160-.490)	421
12-19 years	13-14	*	< LOD	< LOD	.090 (.060-.130)	.140 (.080-.270)	427
20 years and older	13-14	*	< LOD	< LOD	.050 (<LOD-.070)	.090 (.080-.130)	1816
Gender							
Males	13-14	*	< LOD	< LOD	.070 (.050-.090)	.130 (.100-.200)	1344
Females	13-14	*	< LOD	< LOD	.070 (.050-.080)	.100 (.080-.140)	1320
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	.060 (<LOD-.090)	.130 (.070-.230)	428
Non-Hispanic blacks	13-14	*	< LOD	< LOD	.060 (<LOD-.080)	.100 (.080-.160)	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	.070 (.060-.090)	.130 (.090-.190)	1014
All Hispanics	13-14	*	< LOD	< LOD	.060 (<LOD-.070)	.100 (.070-.150)	671
Asians	13-14	*	< LOD	< LOD	< LOD	.080 (<LOD-.200)	290

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.05.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Di-p-cresylphosphate (DpCP) (creatinine corrected) (2013 – 2014)

Metabolite of Tri-p-cresylphosphate (TpCP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	.133 (.125-.152)	.200 (.182-.219)	2662
Age group							
6-11 years	13-14	*	< LOD	.125 (<LOD-.174)	.247 (.182-.361)	.361 (.222-.500)	421
12-19 years	13-14	*	< LOD	< LOD	.108 (.085-.174)	.200 (.108-.267)	427
20 years and older	13-14	*	< LOD	< LOD	.133 (<LOD-.143)	.182 (.154-.200)	1814
Gender							
Males	13-14	*	< LOD	< LOD	.121 (.103-.138)	.174 (.135-.222)	1343
Females	13-14	*	< LOD	< LOD	.154 (.133-.182)	.211 (.190-.235)	1319
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	.143 (<LOD-.174)	.190 (.170-.235)	426
Non-Hispanic blacks	13-14	*	< LOD	< LOD	.082 (<LOD-.101)	.114 (.093-.143)	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	.138 (.125-.167)	.211 (.182-.235)	1014
All Hispanics	13-14	*	< LOD	< LOD	.138 (<LOD-.170)	.190 (.174-.222)	669
Asians	13-14	*	< LOD	< LOD	< LOD	.200 (<LOD-.333)	290

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary Diphenyl phosphate (DPhP) (2013 – 2014)

Metabolite of Triphenyl phosphate (TPhP)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.845 (.772-.925)	.820 (.750-.920)	1.77 (1.58-1.91)	3.71 (3.14-4.63)	6.23 (5.16-7.90)	2660
Age group							
6-11 years	13-14	1.69 (1.37-2.10)	1.70 (1.24-2.02)	3.47 (2.71-4.35)	8.17 (5.70-10.0)	13.0 (8.17-17.8)	420
12-19 years	13-14	1.41 (1.19-1.67)	1.44 (1.24-1.79)	2.99 (2.20-3.57)	5.31 (4.42-6.99)	7.96 (6.28-13.0)	426
20 years and older	13-14	.727 (.668-.791)	.720 (.630-.790)	1.44 (1.36-1.57)	3.00 (2.66-3.43)	5.43 (3.98-6.23)	1814
Gender							
Males	13-14	.778 (.695-.871)	.800 (.690-.910)	1.56 (1.38-1.73)	3.00 (2.44-3.71)	4.91 (3.68-6.23)	1341
Females	13-14	.915 (.826-1.01)	.890 (.760-1.00)	2.02 (1.81-2.25)	4.81 (3.56-5.81)	8.17 (5.69-11.3)	1319
Race/ethnicity							
Mexican Americans	13-14	.898 (.798-1.01)	.850 (.730-1.07)	1.85 (1.50-2.38)	3.98 (2.90-5.32)	5.89 (4.64-8.32)	427
Non-Hispanic blacks	13-14	1.09 (.944-1.27)	1.05 (.920-1.16)	2.16 (1.81-2.65)	5.06 (3.33-8.22)	8.69 (5.85-13.5)	586
Non-Hispanic whites	13-14	.819 (.726-.923)	.800 (.680-.930)	1.71 (1.49-1.87)	3.54 (2.98-4.91)	6.23 (5.11-8.17)	1011
All Hispanics	13-14	.880 (.775-1.00)	.830 (.740-1.02)	1.79 (1.48-2.29)	3.71 (2.97-4.51)	5.51 (4.43-6.40)	670
Asians	13-14	.564 (.483-.659)	.570 (.410-.760)	1.28 (1.05-1.50)	2.65 (1.72-3.62)	4.11 (3.21-5.69)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.16.

Urinary Diphenyl phosphate (DPhP) (creatinine corrected) (2013 – 2014)

Metabolite of Triphenyl phosphate (TPhP)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.904 (.846-.966)	.794 (.762-.850)	1.60 (1.40-1.81)	3.34 (2.84-4.10)	5.51 (4.72-6.36)	2658
Age group							
6-11 years	13-14	2.18 (1.89-2.51)	1.95 (1.66-2.26)	3.70 (3.05-4.56)	7.17 (5.72-8.69)	9.66 (7.06-17.8)	420
12-19 years	13-14	1.21 (1.07-1.37)	1.12 (.940-1.32)	2.21 (1.62-2.79)	3.77 (3.00-5.46)	6.59 (4.02-8.47)	426
20 years and older	13-14	.786 (.742-.834)	.695 (.643-.762)	1.30 (1.15-1.44)	2.70 (2.31-3.19)	4.82 (3.91-5.51)	1812
Gender							
Males	13-14	.715 (.671-.761)	.653 (.605-.715)	1.14 (1.08-1.28)	2.26 (1.96-2.67)	3.91 (2.69-4.90)	1340
Females	13-14	1.13 (1.05-1.23)	1.00 (.910-1.11)	2.02 (1.80-2.36)	4.65 (3.60-5.46)	6.84 (5.77-8.47)	1318
Race/ethnicity							
Mexican Americans	13-14	.928 (.820-1.05)	.800 (.654-1.02)	1.57 (1.33-1.92)	3.27 (2.70-4.08)	4.99 (3.77-6.44)	425
Non-Hispanic blacks	13-14	.842 (.701-1.01)	.701 (.627-.789)	1.57 (1.19-2.06)	3.53 (2.37-5.46)	6.26 (4.01-9.66)	586
Non-Hispanic whites	13-14	.930 (.855-1.01)	.824 (.757-.931)	1.64 (1.43-1.85)	3.55 (2.79-4.54)	5.52 (4.56-6.84)	1011
All Hispanics	13-14	.913 (.807-1.03)	.800 (.669-.944)	1.56 (1.32-1.95)	3.24 (2.69-4.04)	5.18 (3.89-6.50)	668
Asians	13-14	.718 (.646-.799)	.681 (.574-.788)	1.19 (1.00-1.44)	2.19 (1.72-3.62)	4.21 (2.62-5.04)	291

Urinary 2,3,4,5-Tetrabromobenzoic acid (TBBA) (2013 – 2014)

Metabolite of 2-Ethylhexyl-2,3,4,5-tetrabromobenzoate (EH-TBB)

Geometric mean and selected percentiles of concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	.050 (<LOD-.060)	2665
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	.070 (.050-.090)	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1817
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	.060 (<LOD-.070)	1344
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1321
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	428
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	.060 (<LOD-.090)	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	.050 (<LOD-.070)	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	671
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.05.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2,3,4,5-Tetrabromobenzoic acid (TBBA) (creatinine corrected) (2013 – 2014)

Metabolite of 2-Ethylhexyl-2,3,4,5-tetrabromobenzoate (EH-TBB)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	.174 (<LOD-.190)	2663
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	.235 (.167-.286)	421
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	427
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1815
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	.143 (<LOD-.182)	1343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1320
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	426
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	.122 (<LOD-.154)	587
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	.182 (<LOD-.200)	1014
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	669
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary ortho-Phenylphenol (2003 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	.100 (<LOD-.200)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.10)	2525
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.800)	2548
	07-08	*	< LOD	< LOD	.100 (.100-.200)	.300 (.200-.400)	2604
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.500-.600)	2749
Age group							
6-11 years	03-04	.180 (.158-.206)	.200 (.200-.200)	.300 (.300-.400)	.600 (.500-.800)	.800 (.500-1.30)	314
	05-06	*	< LOD	.100 (<LOD-.200)	.500 (.300-1.10)	1.30 (.700-1.90)	356
	07-08	*	< LOD	< LOD	.300 (.200-.500)	.600 (.300-1.00)	389
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.700)	.600 (.400-1.20)	415
12-19 years	03-04	.175 (.149-.206)	.200 (.100-.200)	.400 (.300-.500)	.600 (.500-.800)	.900 (.700-1.30)	722
	05-06	*	< LOD	< LOD	.300 (.200-.500)	.600 (.500-.800)	702
	07-08	*	< LOD	< LOD	.100 (.100-.200)	.300 (.200-.600)	401
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.600 (.500-.900)	420
20 years and older	03-04	*	.100 (<LOD-.100)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.10)	1489
	05-06	*	< LOD	< LOD	.300 (.100-.400)	.500 (.400-.800)	1490
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.500)	1914
Gender							
Males	03-04	*	.100 (<LOD-.200)	.400 (.300-.400)	.600 (.500-.700)	.800 (.600-1.00)	1231
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.900)	1270
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1294
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.500-.700)	1399
Females	03-04	*	.100 (<LOD-.200)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.20)	1294
	05-06	*	< LOD	< LOD	.300 (.200-.400)	.500 (.400-.800)	1278
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1310
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.500)	1350
Race/ethnicity							
Mexican Americans	03-04	.191 (.150-.245)	.200 (.100-.300)	.400 (.300-.600)	.700 (.500-1.10)	1.10 (.600-1.60)	617
	05-06	*	< LOD	< LOD	.400 (.100-.900)	.800 (.400-3.20)	637
	07-08	*	< LOD	< LOD	.100 (<LOD-.300)	.400 (.200-1.10)	531
	09-10	*	< LOD	< LOD	.300 (.200-.400)	.400 (.300-.900)	566
Non-Hispanic blacks	03-04	*	.100 (<LOD-.200)	.400 (.300-.400)	.600 (.500-.800)	1.00 (.600-1.40)	636
	05-06	*	< LOD	< LOD	.400 (.300-.500)	.500 (.400-.700)	678
	07-08	*	< LOD	< LOD	.200 (<LOD-.300)	.400 (.200-.600)	597
	09-10	*	< LOD	.200 (<LOD-.300)	.400 (.300-.600)	.700 (.500-.800)	516
Non-Hispanic whites	03-04	*	.100 (<LOD-.100)	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.00)	1077
	05-06	*	< LOD	< LOD	.300 (.100-.400)	.500 (.300-1.10)	1038
	07-08	*	< LOD	< LOD	.100 (<LOD-.200)	.300 (.200-.500)	1077
	09-10	*	< LOD	< LOD	.300 (.300-.400)	.500 (.400-.600)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.1, 0.1, 0.1, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Orthophenylphenol_BiomonitoringSummary.html

Urinary ortho-Phenylphenol (creatinine corrected) (2003 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	.150 (<LOD-.170)	.320 (.270-.380)	.670 (.500-.800)	.950 (.750-1.31)	2522
	05-06	*	< LOD	< LOD	.370 (.310-.410)	.600 (.470-.750)	2548
	07-08	*	< LOD	< LOD	.290 (.250-.330)	.470 (.400-.520)	2604
	09-10	*	< LOD	< LOD	.560 (.480-.640)	.820 (.700-.910)	2749
Age group							
6-11 years	03-04	.219 (.189-.255)	.230 (.170-.280)	.400 (.330-.540)	.760 (.530-.860)	.880 (.760-1.90)	314
	05-06	*	< LOD	.180 (<LOD-.240)	.590 (.430-.930)	1.94 (.710-2.94)	356
	07-08	*	< LOD	< LOD	.390 (.240-.660)	.660 (.390-1.31)	389
	09-10	*	< LOD	.410 (<LOD-.480)	.820 (.560-1.06)	1.22 (.850-1.56)	415
12-19 years	03-04	.131 (.110-.156)	.140 (.100-.160)	.270 (.230-.340)	.490 (.400-.690)	.790 (.550-1.30)	720
	05-06	*	< LOD	< LOD	.280 (.220-.320)	.410 (.330-.710)	702
	07-08	*	< LOD	< LOD	.190 (.170-.250)	.330 (.240-.470)	401
	09-10	*	< LOD	.250 (<LOD-.300)	.420 (.300-.550)	.550 (.390-1.20)	420
20 years and older	03-04	*	.140 (<LOD-.170)	.320 (.260-.370)	.670 (.500-.800)	1.00 (.740-1.38)	1488
	05-06	*	< LOD	< LOD	.370 (.300-.410)	.540 (.430-.710)	1490
	07-08	*	< LOD	< LOD	.300 (<LOD-.330)	.470 (.390-.520)	1814
	09-10	*	< LOD	< LOD	.560 (.480-.640)	.820 (.700-.880)	1914
Gender							
Males	03-04	*	.130 (<LOD-.150)	.290 (.240-.340)	.570 (.430-.740)	.880 (.720-1.06)	1230
	05-06	*	< LOD	< LOD	.280 (.200-.350)	.470 (.350-.670)	1270
	07-08	*	< LOD	< LOD	.220 (<LOD-.250)	.350 (.300-.440)	1294
	09-10	*	< LOD	< LOD	.440 (.360-.540)	.670 (.510-.850)	1399
Females	03-04	*	.170 (<LOD-.200)	.350 (.280-.440)	.700 (.500-.940)	1.07 (.730-1.57)	1292
	05-06	*	< LOD	< LOD	.430 (.370-.500)	.700 (.500-1.03)	1278
	07-08	*	< LOD	< LOD	.350 (<LOD-.440)	.500 (.440-.580)	1310
	09-10	*	< LOD	< LOD	.640 (.570-.700)	.930 (.780-1.17)	1350
Race/ethnicity							
Mexican Americans	03-04	.174 (.132-.229)	.170 (.120-.240)	.440 (.280-.590)	.770 (.560-1.09)	1.11 (.770-1.72)	616
	05-06	*	< LOD	< LOD	.370 (.210-.670)	.740 (.390-1.71)	637
	07-08	*	< LOD	< LOD	.250 (<LOD-.290)	.430 (.320-.910)	531
	09-10	*	< LOD	< LOD	.420 (.370-.560)	.680 (.560-.880)	566
Non-Hispanic blacks	03-04	*	.110 (<LOD-.130)	.250 (.200-.310)	.530 (.380-.650)	.770 (.600-1.02)	635
	05-06	*	< LOD	< LOD	.290 (.220-.370)	.440 (.380-.540)	678
	07-08	*	< LOD	< LOD	.210 (<LOD-.250)	.330 (.250-.640)	597
	09-10	*	< LOD	.220 (<LOD-.240)	.370 (.310-.450)	.570 (.440-.860)	516
Non-Hispanic whites	03-04	*	.150 (<LOD-.180)	.330 (.260-.390)	.690 (.470-.830)	1.00 (.740-1.38)	1076
	05-06	*	< LOD	< LOD	.390 (.320-.430)	.610 (.470-.880)	1038
	07-08	*	< LOD	< LOD	.300 (<LOD-.370)	.470 (.390-.580)	1077
	09-10	*	< LOD	< LOD	.610 (.520-.700)	.870 (.700-.940)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Orthophenylphenol_BiomonitoringSummary.html

Urinary Ethylene thiourea (2003 – 2008)

Metabolite of Several Dithiocarbamate Fungicides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	.310 (<LOD-.560)	2169
	05-06	*	< LOD	< LOD	.600 (<LOD-1.08)	1.34 (.900-1.75)	2585
	07-08	*	< LOD	< LOD	< LOD	.430 (<LOD-.960)	2571
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	280
	05-06	*	< LOD	< LOD	.830 (<LOD-1.53)	1.55 (.960-3.11)	342
	07-08	*	< LOD	< LOD	< LOD	.610 (<LOD-1.17)	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	.600 (<LOD-.920)	622
	05-06	*	< LOD	< LOD	.580 (<LOD-1.11)	1.34 (.660-2.23)	698
	07-08	*	< LOD	< LOD	< LOD	.440 (<LOD-.970)	387
20-59 years	03-04	*	< LOD	< LOD	< LOD	.310 (<LOD-.580)	827
	05-06	*	< LOD	< LOD	.750 (.500-1.18)	1.42 (1.05-1.75)	1072
	07-08	*	< LOD	< LOD	< LOD	.510 (<LOD-1.19)	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	.360 (<LOD-.780)	473
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	.360 (<LOD-.530)	1056
	05-06	*	< LOD	< LOD	.940 (.530-1.19)	1.51 (1.08-2.09)	1219
	07-08	*	< LOD	< LOD	< LOD	.430 (<LOD-1.05)	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1113
	05-06	*	< LOD	< LOD	.370 (<LOD-.890)	.950 (.500-1.58)	1366
	07-08	*	< LOD	< LOD	< LOD	.410 (<LOD-.960)	1282
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	495
	05-06	*	< LOD	< LOD	.440 (<LOD-.960)	1.12 (.650-1.76)	686
	07-08	*	< LOD	< LOD	< LOD	.340 (<LOD-.630)	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	.480 (<LOD-1.06)	607
	05-06	*	< LOD	< LOD	1.37 (.790-2.05)	2.22 (1.37-3.77)	695
	07-08	*	< LOD	< LOD	< LOD	.630 (<LOD-2.42)	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	.330 (<LOD-.560)	925
	05-06	*	< LOD	< LOD	.570 (<LOD-1.02)	1.18 (.940-1.42)	998
	07-08	*	< LOD	< LOD	< LOD	.300 (<LOD-.750)	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.24, and 0.21 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html

Urinary Ethylene thiourea (creatinine corrected) (2003 – 2008)

Metabolite of Several Dithiocarbamate Fungicides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	.434 (<LOD-.538)	2167
	05-06	*	< LOD	< LOD	.792 (<LOD-1.06)	1.32 (1.06-1.58)	2585
	07-08	*	< LOD	< LOD	< LOD	.789 (<LOD-1.00)	2569
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	280
	05-06	*	< LOD	< LOD	1.04 (<LOD-1.36)	2.36 (1.16-3.12)	342
	07-08	*	< LOD	< LOD	< LOD	.974 (<LOD-1.50)	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	.423 (<LOD-.700)	621
	05-06	*	< LOD	< LOD	.582 (<LOD-.893)	.967 (.680-1.58)	698
	07-08	*	< LOD	< LOD	< LOD	.417 (<LOD-.652)	385
20-59 years	03-04	*	< LOD	< LOD	< LOD	.425 (<LOD-.506)	826
	05-06	*	< LOD	< LOD	.892 (.708-1.21)	1.36 (1.21-1.78)	1072
	07-08	*	< LOD	< LOD	< LOD	.789 (<LOD-1.31)	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	1.00 (<LOD-1.21)	473
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.467)	1055
	05-06	*	< LOD	< LOD	.783 (.634-1.04)	1.28 (1.05-1.45)	1219
	07-08	*	< LOD	< LOD	< LOD	.529 (<LOD-.652)	1288
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1112
	05-06	*	< LOD	< LOD	.827 (<LOD-1.21)	1.33 (1.00-2.01)	1366
	07-08	*	< LOD	< LOD	< LOD	.938 (<LOD-1.25)	1281
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	494
	05-06	*	< LOD	< LOD	.748 (<LOD-1.17)	1.33 (.837-1.89)	686
	07-08	*	< LOD	< LOD	< LOD	.714 (<LOD-1.10)	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	.368 (<LOD-.619)	607
	05-06	*	< LOD	< LOD	1.02 (.649-1.74)	1.84 (1.04-2.50)	695
	07-08	*	< LOD	< LOD	< LOD	.652 (<LOD-1.34)	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	.434 (<LOD-.583)	924
	05-06	*	< LOD	< LOD	.773 (<LOD-1.04)	1.25 (.968-1.48)	998
	07-08	*	< LOD	< LOD	< LOD	.750 (<LOD-.882)	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html

Urinary Pentachlorophenol (2003 – 2004) Also a

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.12 (.570-1.58)	2.57 (2.08-2.99)	3.63 (2.98-4.61)	2354
Age group							
6-11 years	03-04	*	< LOD	1.57 (.970-2.25)	3.23 (2.12-5.67)	5.67 (2.94-6.38)	290
12-19 years	03-04	*	< LOD	1.36 (.760-1.99)	2.88 (2.08-3.53)	3.80 (3.06-6.38)	674
20-59 years	03-04	*	< LOD	.980 (<LOD-1.50)	2.40 (1.73-2.79)	3.11 (2.75-3.65)	889
60 years and older	03-04	*	< LOD	1.14 (.540-1.74)	2.76 (2.17-3.60)	4.77 (3.29-5.88)	501
Gender							
Males	03-04	*	< LOD	1.32 (.720-2.05)	2.79 (2.46-3.40)	4.58 (3.50-5.49)	1147
Females	03-04	*	< LOD	.880 (<LOD-1.41)	2.12 (1.71-2.74)	3.20 (2.44-3.84)	1207
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	1.73 (.640-3.38)	2.44 (1.73-3.84)	550
Non-Hispanic blacks	03-04	*	< LOD	1.46 (1.11-1.93)	2.79 (2.22-3.65)	4.06 (3.20-4.77)	610
Non-Hispanic whites	03-04	*	< LOD	1.17 (.580-1.74)	2.66 (2.06-3.23)	3.69 (2.99-5.17)	1039

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pentachlorophenol_BiomonitoringSummary.html

Urinary Pentachlorophenol (creatinine corrected) (2003 – 2004) Also a

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.22 (1.01-1.52)	2.30 (1.84-2.77)	3.44 (2.69-3.96)	2352
Age group							
6-11 years	03-04	*	< LOD	1.75 (1.38-2.69)	3.72 (2.50-4.96)	4.96 (3.59-10.6)	290
12-19 years	03-04	*	< LOD	1.11 (.800-1.28)	1.67 (1.31-2.65)	2.76 (1.64-3.89)	673
20-59 years	03-04	*	< LOD	1.10 (<LOD-1.31)	1.99 (1.66-2.59)	2.92 (2.20-3.81)	888
60 years and older	03-04	*	< LOD	1.65 (1.30-1.99)	2.64 (2.14-3.50)	4.15 (2.92-4.90)	501
Gender							
Males	03-04	*	< LOD	1.10 (.825-1.38)	1.93 (1.62-2.65)	3.23 (2.06-4.94)	1146
Females	03-04	*	< LOD	1.37 (<LOD-1.74)	2.50 (2.13-2.98)	3.50 (2.79-4.07)	1206
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	1.54 (1.01-2.69)	2.33 (1.40-4.62)	549
Non-Hispanic blacks	03-04	*	< LOD	.919 (.679-1.25)	1.88 (1.42-2.77)	2.94 (2.21-3.76)	610
Non-Hispanic whites	03-04	*	< LOD	1.35 (1.08-1.64)	2.42 (1.94-3.18)	3.54 (2.77-4.78)	1038

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pentachlorophenol_BiomonitoringSummary.html

Urinary Propylene thiourea (2003 – 2008)

Metabolite of Propineb

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2456
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	305
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	702
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	387
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	926
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	523
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1209
	05-06	*	< LOD	< LOD	< LOD	< LOD	1246
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1247
	05-06	*	< LOD	< LOD	< LOD	< LOD	1382
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	598
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1062
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.37, and 0.36 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html

Urinary Propylene thiourea (creatinine corrected) (2003 – 2008)

Metabolite of Propineb

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2454
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	305
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	701
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	925
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	523
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1246
	07-08	*	< LOD	< LOD	< LOD	< LOD	1288
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1246
	05-06	*	< LOD	< LOD	< LOD	< LOD	1382
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	597
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1061
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/ETUPTU_BiomonitoringSummary.html

Urinary Atrazine (2007 – 2008)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Atrazine (creatinine corrected) (2007 – 2008)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Atrazine mercapturate (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Atrazine mercapturate (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desethyl atrazine (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2482
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	382
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1129
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	611
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1234
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	462
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	563
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1048

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desethyl atrazine (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2480
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1129
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	611
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1233
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	562
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1048

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desisopropyl atrazine (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2445
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	367
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	361
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1113
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	604
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1224
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1221
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1010

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desisopropyl atrazine (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2444
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	367
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	360
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1113
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	604
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1223
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1221
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1010

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desisopropyl atrazine mercapturate (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2480
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	372
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1135
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	607
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1233
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	531
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1039

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Desisopropyl atrazine mercapturate (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2478
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	370
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1135
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	607
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1232
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1246
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	530
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1039

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Diaminochloroatrazine (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary Diaminochloroatrazine (creatinine corrected) (2007 – 2008)‡

Metabolite of Atrazine

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1179
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	635
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	572
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1085

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Only measured in Survey years 2007-2008.

Urinary 2,4-Dichlorophenoxyacetic acid (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1977
	01-02	*	< LOD	.220 (<LOD-.310)	.690 (.560-.880)	1.26 (1.01-1.36)	2903
	03-04	.245 (.210-.286)	.230 (.180-.320)	.580 (.490-.660)	1.10 (.910-1.34)	1.71 (1.41-2.37)	2488
	07-08	*	< LOD	.550 (.530-.590)	1.06 (.940-1.19)	1.60 (1.38-1.79)	2587
	09-10	.308 (.275-.345)	.280 (.250-.320)	.530 (.470-.600)	.930 (.810-1.08)	1.43 (1.12-2.02)	2747
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	1.30 (<LOD-2.40)	477
	01-02	*	< LOD	.310 (.210-.400)	.740 (.550-1.13)	1.55 (1.00-2.21)	546
	03-04	.266 (.214-.332)	.290 (.200-.390)	.670 (.440-.920)	1.03 (.890-1.40)	1.88 (1.01-2.54)	309
	07-08	*	< LOD	.720 (.630-.860)	1.44 (1.15-1.64)	1.93 (1.62-2.84)	385
	09-10	.385 (.330-.449)	.350 (.290-.440)	.670 (.510-.780)	1.20 (.860-1.58)	1.59 (1.36-2.77)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.60)	677
	01-02	*	< LOD	.250 (<LOD-.420)	.690 (.440-1.16)	1.24 (.690-1.66)	797
	03-04	.256 (.212-.310)	.260 (.180-.380)	.580 (.470-.710)	1.04 (.890-1.31)	1.66 (1.20-2.97)	714
	07-08	*	< LOD	.590 (.530-.670)	1.29 (.790-1.97)	2.38 (1.46-2.73)	390
	09-10	.301 (.248-.366)	.280 (.240-.330)	.490 (.420-.620)	.900 (.660-1.05)	1.12 (.880-2.88)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	823
	01-02	*	< LOD	.210 (<LOD-.310)	.690 (.540-.910)	1.27 (.930-1.49)	1070
	03-04	.239 (.205-.279)	.220 (.170-.300)	.570 (.480-.640)	.980 (.840-1.35)	1.55 (1.25-2.50)	937
	07-08	*	< LOD	.530 (.490-.570)	.970 (.800-1.17)	1.36 (1.22-1.78)	1179
	09-10	.288 (.259-.319)	.270 (.230-.310)	.500 (.440-.560)	.870 (.740-1.04)	1.33 (1.05-1.69)	1309
60 years and older	01-02	*	< LOD	< LOD	.560 (.390-.870)	1.26 (.690-1.78)	490
	03-04	.248 (.205-.301)	.210 (.130-.320)	.560 (.470-.680)	1.36 (1.07-1.90)	2.42 (1.66-3.67)	528
	07-08	*	< LOD	.560 (.530-.640)	1.02 (.840-1.12)	1.46 (1.10-2.11)	633
	09-10	.349 (.294-.414)	.300 (.230-.390)	.590 (.510-.720)	1.11 (.810-1.57)	2.08 (1.16-5.40)	651
Gender Males	99-00	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.80)	962
	01-02	*	< LOD	.330 (.220-.490)	.890 (.690-1.17)	1.49 (1.26-2.03)	1364
	03-04	.276 (.240-.317)	.290 (.210-.370)	.630 (.540-.740)	1.22 (.960-1.42)	2.12 (1.42-2.73)	1218
	07-08	*	< LOD	.610 (.580-.650)	1.26 (1.05-1.38)	2.11 (1.68-2.41)	1292
	09-10	.347 (.298-.404)	.320 (.270-.370)	.580 (.500-.690)	1.05 (.810-1.47)	1.82 (1.12-4.14)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1015
	01-02	*	< LOD	< LOD	.470 (.360-.620)	.890 (.670-1.21)	1539
	03-04	.219 (.181-.264)	.190 (.110-.280)	.490 (.400-.630)	.980 (.860-1.33)	1.48 (1.31-2.27)	1270
	07-08	*	< LOD	.500 (.460-.540)	.870 (.790-1.01)	1.28 (1.12-1.42)	1295
	09-10	.275 (.250-.303)	.260 (.220-.300)	.480 (.440-.540)	.860 (.740-.950)	1.14 (.970-1.39)	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 09-10 are 0.952, 0.2, and 0.1, 0.4 and 0.15 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenoxyacetic acid (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	695
	01-02	*	< LOD	.250 (<LOD-.330)	.730 (.610-.890)	1.20 (.960-1.36)	743
	03-04	.313 (.256-.383)	.340 (.260-.440)	.730 (.610-.840)	1.42 (1.02-1.52)	1.81 (1.23-3.53)	606
	07-08	*	< LOD	.520 (.470-.590)	.860 (.790-1.00)	1.46 (.950-2.22)	500
	09-10	.276 (.240-.318)	.250 (.210-.300)	.470 (.410-.570)	.840 (.680-1.08)	1.23 (.830-2.02)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.70)	520
	01-02	*	< LOD	< LOD	.560 (.420-.890)	1.06 (.790-1.48)	743
	03-04	*	.190 (<LOD-.290)	.510 (.380-.630)	.910 (.750-1.22)	1.31 (.990-1.98)	648
	07-08	*	< LOD	.580 (.530-.630)	1.05 (.910-1.20)	1.49 (1.23-1.97)	574
	09-10	.284 (.251-.321)	.260 (.240-.290)	.460 (.390-.540)	.790 (.620-1.03)	1.11 (.790-1.81)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	589
	01-02	*	< LOD	.240 (<LOD-.360)	.730 (.560-.980)	1.30 (1.01-1.66)	1201
	03-04	.254 (.211-.306)	.240 (.180-.360)	.590 (.470-.720)	1.17 (.930-1.41)	2.00 (1.40-2.51)	1076
	07-08	*	< LOD	.560 (.540-.600)	1.12 (.940-1.29)	1.61 (1.36-2.16)	1083
	09-10	.328 (.281-.382)	.300 (.250-.370)	.570 (.480-.680)	.980 (.830-1.20)	1.57 (1.14-2.77)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 07-08 are 0.952, 0.2, and 0.1, 0.4 and 0.15 respectively.
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenoxyacetic acid (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1977
	01-02	*	< LOD	.378 (<LOD-.412)	.700 (.635-.778)	1.12 (1.03-1.26)	2901
	03-04	.241 (.203-.287)	.253 (.206-.290)	.500 (.423-.610)	1.03 (.855-1.28)	1.85 (1.42-2.50)	2486
	07-08	*	< LOD	.737 (.667-.779)	1.28 (1.17-1.40)	1.84 (1.65-2.12)	2585
	09-10	.321 (.286-.360)	.301 (.272-.329)	.500 (.458-.573)	.983 (.846-1.19)	1.55 (1.30-2.12)	2747
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	1.32 (<LOD-2.24)	477
	01-02	*	< LOD	.485 (.378-.679)	1.13 (.825-1.35)	1.41 (1.27-1.73)	546
	03-04	.323 (.249-.421)	.320 (.250-.440)	.744 (.500-1.06)	1.30 (.990-2.55)	2.55 (1.23-5.16)	309
	07-08	*	< LOD	.970 (.817-1.24)	1.65 (1.47-1.85)	2.96 (1.65-6.18)	385
	09-10	.521 (.444-.610)	.478 (.411-.531)	.792 (.674-1.06)	1.52 (1.21-1.74)	2.20 (1.53-3.02)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	.593 (<LOD-1.05)	677
	01-02	*	< LOD	.275 (<LOD-.376)	.483 (.328-.662)	.662 (.517-.918)	796
	03-04	.193 (.160-.232)	.205 (.157-.250)	.419 (.328-.460)	.709 (.540-.925)	1.23 (.837-2.35)	713
	07-08	*	< LOD	.555 (.475-.651)	.908 (.778-1.05)	1.56 (.950-2.79)	388
	09-10	.258 (.212-.314)	.256 (.200-.299)	.358 (.320-.439)	.706 (.439-1.05)	1.05 (.579-3.27)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	823
	01-02	*	< LOD	.378 (<LOD-.412)	.667 (.593-.778)	1.08 (.806-1.29)	1070
	03-04	.227 (.189-.274)	.242 (.196-.278)	.452 (.397-.545)	.923 (.708-1.20)	1.48 (1.14-2.43)	936
	07-08	*	< LOD	.667 (.588-.769)	1.17 (1.04-1.34)	1.65 (1.43-2.33)	1179
	09-10	.288 (.259-.321)	.276 (.250-.309)	.458 (.418-.507)	.860 (.750-.962)	1.36 (1.00-1.88)	1309
60 years and older	01-02	*	< LOD	< LOD	.824 (.583-1.10)	1.34 (1.00-2.16)	489
	03-04	.301 (.248-.366)	.310 (.237-.385)	.657 (.510-.866)	1.54 (1.16-1.95)	3.00 (1.95-6.36)	528
	07-08	*	< LOD	.860 (.781-.903)	1.53 (1.27-1.72)	1.96 (1.60-2.33)	633
	09-10	.414 (.356-.480)	.354 (.306-.407)	.667 (.548-.812)	1.41 (.983-1.99)	2.87 (1.49-4.49)	651
Gender Males	99-00	*	< LOD	< LOD	< LOD	.667 (<LOD-1.16)	962
	01-02	*	< LOD	.336 (.272-.412)	.652 (.560-.825)	1.14 (.979-1.39)	1364
	03-04	.227 (.189-.271)	.238 (.194-.276)	.473 (.412-.564)	.941 (.767-1.23)	1.80 (1.09-2.79)	1217
	07-08	*	< LOD	.596 (.538-.670)	1.14 (.980-1.24)	1.63 (1.47-2.15)	1291
	09-10	.309 (.266-.359)	.282 (.242-.323)	.481 (.413-.554)	1.01 (.707-1.57)	1.80 (1.06-3.88)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1015
	01-02	*	< LOD	< LOD	.711 (.631-.809)	1.10 (.933-1.26)	1537
	03-04	.256 (.213-.308)	.263 (.212-.311)	.522 (.435-.645)	1.14 (.900-1.42)	1.85 (1.42-2.64)	1269
	07-08	*	< LOD	.854 (.757-.903)	1.47 (1.23-1.58)	1.91 (1.65-2.33)	1294
	09-10	.334 (.302-.369)	.319 (.288-.355)	.533 (.475-.611)	.953 (.862-1.10)	1.40 (1.21-1.55)	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

*Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4-Dichlorophenoxyacetic acid (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	695
	01-02	*	< LOD	.350 (<LOD-.386)	.720 (.583-.840)	1.08 (.778-1.56)	743
	03-04	.287 (.223-.371)	.309 (.194-.459)	.593 (.463-.771)	1.08 (.833-1.36)	1.54 (1.17-3.19)	605
	07-08	*	< LOD	.622 (.571-.691)	1.15 (.903-1.43)	1.74 (1.37-2.33)	499
	09-10	.289 (.255-.326)	.282 (.255-.300)	.434 (.392-.495)	.781 (.565-1.11)	1.30 (.733-2.63)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.593 (<LOD-1.19)	520
	01-02	*	< LOD	< LOD	.467 (.349-.583)	.778 (.552-.975)	742
	03-04	*	.140 (<LOD-.194)	.304 (.264-.356)	.629 (.461-.815)	.970 (.719-1.50)	648
	07-08	*	< LOD	.509 (.457-.596)	.966 (.875-1.07)	1.33 (1.12-1.75)	573
	09-10	.215 (.192-.240)	.195 (.180-.218)	.344 (.314-.400)	.628 (.489-.822)	1.06 (.714-1.38)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	589
	01-02	*	< LOD	.412 (<LOD-.455)	.769 (.667-.894)	1.25 (1.05-1.40)	1200
	03-04	.263 (.213-.326)	.269 (.226-.318)	.539 (.434-.665)	1.13 (.941-1.46)	2.34 (1.54-2.73)	1075
	07-08	*	< LOD	.780 (.737-.871)	1.36 (1.17-1.55)	2.00 (1.60-2.49)	1083
	09-10	.357 (.308-.414)	.328 (.288-.384)	.547 (.485-.644)	1.10 (.897-1.40)	1.79 (1.35-3.02)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4-DichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenoxyacetic acid (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1814
	01-02	*	< LOD	< LOD	< LOD	< LOD	3047
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	2416
	07-08	*	< LOD	< LOD	< LOD	< LOD	2588
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	430
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	03-04	*	< LOD	< LOD	< LOD	.110 (<LOD-.160)	303
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	618
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.190)	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	766
	01-02	*	< LOD	< LOD	< LOD	< LOD	1127
	03-04	*	< LOD	< LOD	< LOD	.160 (<LOD-.250)	908
	07-08	*	< LOD	< LOD	< LOD	< LOD	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.230)	504
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	891
	01-02	*	< LOD	< LOD	< LOD	< LOD	1428
	03-04	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	923
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	03-04	*	< LOD	< LOD	< LOD	.150 (<LOD-.230)	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 09-10 are 1.2, 0.1, and 0.1, 0.1 and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenoxyacetic acid (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	652
	01-02	*	< LOD	< LOD	< LOD	< LOD	766
	03-04	*	< LOD	< LOD	.120 (<LOD-.340)	.200 (<LOD-.390)	605
	07-08	*	< LOD	< LOD	< LOD	< LOD	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	483
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	03-04	*	< LOD	< LOD	< LOD	< LOD	641
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	531
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	03-04	*	< LOD	< LOD	< LOD	.150 (<LOD-.230)	1013
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 07-08 and 07-08 are 1.2, 0.1, and 0.1, 0.1 and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenoxyacetic acid (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1814
	01-02	*	< LOD	< LOD	< LOD	< LOD	3045
	03-04	*	< LOD	< LOD	< LOD	.333 (<LOD-.412)	2414
	07-08	*	< LOD	< LOD	< LOD	< LOD	2586
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	430
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	03-04	*	< LOD	< LOD	< LOD	.318 (<LOD-.368)	303
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	618
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	03-04	*	< LOD	< LOD	< LOD	.226 (<LOD-.269)	700
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	766
	01-02	*	< LOD	< LOD	< LOD	< LOD	1127
	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.438)	907
	07-08	*	< LOD	< LOD	< LOD	< LOD	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	03-04	*	< LOD	< LOD	< LOD	.368 (<LOD-.538)	504
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	891
	01-02	*	< LOD	< LOD	< LOD	< LOD	1428
	03-04	*	< LOD	< LOD	< LOD	.253 (<LOD-.350)	1183
	07-08	*	< LOD	< LOD	< LOD	< LOD	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	923
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	03-04	*	< LOD	< LOD	< LOD	.432 (<LOD-.500)	1231
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenoxyacetic acid (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	652
	01-02	*	< LOD	< LOD	< LOD	< LOD	766
	03-04	*	< LOD	< LOD	.200 (<LOD-.333)	.333 (<LOD-.467)	604
	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	483
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	03-04	*	< LOD	< LOD	< LOD	< LOD	641
	07-08	*	< LOD	< LOD	< LOD	< LOD	573
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	531
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	03-04	*	< LOD	< LOD	< LOD	.350 (<LOD-.438)	1012
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2005-2006 or after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,4,5-TrichlorophenoxyaceticAcid_BiomonitoringSummary.html

Urinary Bensulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	286
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1398
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1150
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1205
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	567
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	477
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	558
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1018
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Bensulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	286
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1397
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1204
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1253
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	566
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1017
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Chlorsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2100
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2566
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	259
	05-06	*	< LOD	< LOD	< LOD	< LOD	314
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	653
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1240
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1031
	05-06	*	< LOD	< LOD	< LOD	< LOD	1151
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1069
	05-06	*	< LOD	< LOD	< LOD	< LOD	1268
	07-08	*	< LOD	< LOD	< LOD	< LOD	1281
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	506
	05-06	*	< LOD	< LOD	< LOD	< LOD	633
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	658
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	894
	05-06	*	< LOD	< LOD	< LOD	< LOD	940
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Chlorsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2098
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2564
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	259
	05-06	*	< LOD	< LOD	< LOD	< LOD	314
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	600
	05-06	*	< LOD	< LOD	< LOD	< LOD	653
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1239
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1030
	05-06	*	< LOD	< LOD	< LOD	< LOD	1151
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1068
	05-06	*	< LOD	< LOD	< LOD	< LOD	1268
	07-08	*	< LOD	< LOD	< LOD	< LOD	1280
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	505
	05-06	*	< LOD	< LOD	< LOD	< LOD	633
	07-08	*	< LOD	< LOD	< LOD	< LOD	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	658
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	893
	05-06	*	< LOD	< LOD	< LOD	< LOD	940
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Ethametsulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2321
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2458
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1356
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1711
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1132
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1218
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	590
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	468
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	974
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1052

Limit of detection (LOD, see Data Analysis section) for Survey year 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Ethametsulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2319
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2456
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1711
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1131
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	467
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	533
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	973
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1052

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Foramsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2255
	05-06	*	< LOD	< LOD	< LOD	< LOD	2534
	07-08	*	< LOD	< LOD	< LOD	< LOD	2423
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	283
	05-06	*	< LOD	< LOD	< LOD	< LOD	334
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	653
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1319
	05-06	*	< LOD	< LOD	< LOD	< LOD	1512
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1097
	05-06	*	< LOD	< LOD	< LOD	< LOD	1203
	07-08	*	< LOD	< LOD	< LOD	< LOD	1205
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1158
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1218
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	587
	05-06	*	< LOD	< LOD	< LOD	< LOD	632
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	584
	05-06	*	< LOD	< LOD	< LOD	< LOD	711
	07-08	*	< LOD	< LOD	< LOD	< LOD	523
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	935
	05-06	*	< LOD	< LOD	< LOD	< LOD	990
	07-08	*	< LOD	< LOD	< LOD	< LOD	1004

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Foramsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2253
	05-06	*	< LOD	< LOD	< LOD	< LOD	2534
	07-08	*	< LOD	< LOD	< LOD	< LOD	2421
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	283
	05-06	*	< LOD	< LOD	< LOD	< LOD	334
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	362
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1318
	05-06	*	< LOD	< LOD	< LOD	< LOD	1512
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1096
	05-06	*	< LOD	< LOD	< LOD	< LOD	1203
	07-08	*	< LOD	< LOD	< LOD	< LOD	1204
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1157
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	586
	05-06	*	< LOD	< LOD	< LOD	< LOD	632
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	584
	05-06	*	< LOD	< LOD	< LOD	< LOD	711
	07-08	*	< LOD	< LOD	< LOD	< LOD	522
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	934
	05-06	*	< LOD	< LOD	< LOD	< LOD	990
	07-08	*	< LOD	< LOD	< LOD	< LOD	1004

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Halosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2356
	05-06	*	< LOD	< LOD	< LOD	< LOD	2485
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	331
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	672
	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1393
	05-06	*	< LOD	< LOD	< LOD	< LOD	1475
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1148
	05-06	*	< LOD	< LOD	< LOD	< LOD	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1261
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1301
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	650
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	694
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1005
	05-06	*	< LOD	< LOD	< LOD	< LOD	950
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Halosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2354
	05-06	*	< LOD	< LOD	< LOD	< LOD	2485
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	331
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1392
	05-06	*	< LOD	< LOD	< LOD	< LOD	1475
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1147
	05-06	*	< LOD	< LOD	< LOD	< LOD	1184
	07-08	*	< LOD	< LOD	< LOD	< LOD	1260
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1301
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	591
	05-06	*	< LOD	< LOD	< LOD	< LOD	650
	07-08	*	< LOD	< LOD	< LOD	< LOD	484
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	694
	07-08	*	< LOD	< LOD	< LOD	< LOD	564
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1004
	05-06	*	< LOD	< LOD	< LOD	< LOD	950
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Mesosulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2427
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	371
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1431
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1751
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1238
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	465
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1039
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Mesosulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2425
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	369
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1430
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1751
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1244
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1237
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	464
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	553
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1038
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Metsulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2360
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	675
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1388
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1747
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1152
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1246
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	470
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	538
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1013
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1066

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Metsulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2358
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	674
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	372
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1387
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1747
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1151
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1247
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	594
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	537
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1012
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1066

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Nicosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2322
	05-06	*	< LOD	< LOD	< LOD	< LOD	2570
	07-08	*	< LOD	< LOD	< LOD	< LOD	2422
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	296
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	363
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	666
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1360
	05-06	*	< LOD	< LOD	< LOD	< LOD	1530
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1131
	05-06	*	< LOD	< LOD	< LOD	< LOD	1222
	07-08	*	< LOD	< LOD	< LOD	< LOD	1210
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1191
	05-06	*	< LOD	< LOD	< LOD	< LOD	1348
	07-08	*	< LOD	< LOD	< LOD	< LOD	1212
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	524
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	980
	05-06	*	< LOD	< LOD	< LOD	< LOD	993
	07-08	*	< LOD	< LOD	< LOD	< LOD	1007

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Nicosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2320
	05-06	*	< LOD	< LOD	< LOD	< LOD	2570
	07-08	*	< LOD	< LOD	< LOD	< LOD	2420
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	296
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	363
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	665
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	362
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1359
	05-06	*	< LOD	< LOD	< LOD	< LOD	1530
	07-08	*	< LOD	< LOD	< LOD	< LOD	1695
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1130
	05-06	*	< LOD	< LOD	< LOD	< LOD	1222
	07-08	*	< LOD	< LOD	< LOD	< LOD	1209
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1190
	05-06	*	< LOD	< LOD	< LOD	< LOD	1348
	07-08	*	< LOD	< LOD	< LOD	< LOD	1211
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	588
	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	601
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	523
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	979
	05-06	*	< LOD	< LOD	< LOD	< LOD	993
	07-08	*	< LOD	< LOD	< LOD	< LOD	1007

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Oxasulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2540
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	672
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1393
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1780
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1150
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1205
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1271
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	579
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1018
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1076

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.06, 0.06, and 0.06 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Oxasulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2538
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	671
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1392
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1780
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1204
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	578
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1017
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1076

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Primisulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2250
	05-06	*	< LOD	< LOD	< LOD	< LOD	2455
	07-08	*	< LOD	< LOD	< LOD	< LOD	2422
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	285
	05-06	*	< LOD	< LOD	< LOD	< LOD	327
	07-08	*	< LOD	< LOD	< LOD	< LOD	356
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	627
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1338
	05-06	*	< LOD	< LOD	< LOD	< LOD	1463
	07-08	*	< LOD	< LOD	< LOD	< LOD	1690
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1107
	05-06	*	< LOD	< LOD	< LOD	< LOD	1160
	07-08	*	< LOD	< LOD	< LOD	< LOD	1207
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1143
	05-06	*	< LOD	< LOD	< LOD	< LOD	1295
	07-08	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	574
	05-06	*	< LOD	< LOD	< LOD	< LOD	667
	07-08	*	< LOD	< LOD	< LOD	< LOD	456
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	556
	05-06	*	< LOD	< LOD	< LOD	< LOD	661
	07-08	*	< LOD	< LOD	< LOD	< LOD	549
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	975
	05-06	*	< LOD	< LOD	< LOD	< LOD	938
	07-08	*	< LOD	< LOD	< LOD	< LOD	1030

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.07, 0.07, and 0.07 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Primisulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2249
	05-06	*	< LOD	< LOD	< LOD	< LOD	2455
	07-08	*	< LOD	< LOD	< LOD	< LOD	2420
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	285
	05-06	*	< LOD	< LOD	< LOD	< LOD	327
	07-08	*	< LOD	< LOD	< LOD	< LOD	356
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	626
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1338
	05-06	*	< LOD	< LOD	< LOD	< LOD	1463
	07-08	*	< LOD	< LOD	< LOD	< LOD	1690
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1107
	05-06	*	< LOD	< LOD	< LOD	< LOD	1160
	07-08	*	< LOD	< LOD	< LOD	< LOD	1206
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1142
	05-06	*	< LOD	< LOD	< LOD	< LOD	1295
	07-08	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	573
	05-06	*	< LOD	< LOD	< LOD	< LOD	667
	07-08	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	556
	05-06	*	< LOD	< LOD	< LOD	< LOD	661
	07-08	*	< LOD	< LOD	< LOD	< LOD	548
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	975
	05-06	*	< LOD	< LOD	< LOD	< LOD	938
	07-08	*	< LOD	< LOD	< LOD	< LOD	1030

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Prosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2247
	05-06	*	< LOD	< LOD	< LOD	< LOD	2461
	07-08	*	< LOD	< LOD	< LOD	< LOD	2566
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	284
	05-06	*	< LOD	< LOD	< LOD	< LOD	326
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	640
	05-06	*	< LOD	< LOD	< LOD	< LOD	676
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1323
	05-06	*	< LOD	< LOD	< LOD	< LOD	1459
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1100
	05-06	*	< LOD	< LOD	< LOD	< LOD	1165
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1147
	05-06	*	< LOD	< LOD	< LOD	< LOD	1296
	07-08	*	< LOD	< LOD	< LOD	< LOD	1281
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	589
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	940
	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Prosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2245
	05-06	*	< LOD	< LOD	< LOD	< LOD	2461
	07-08	*	< LOD	< LOD	< LOD	< LOD	2564
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	284
	05-06	*	< LOD	< LOD	< LOD	< LOD	326
	07-08	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	639
	05-06	*	< LOD	< LOD	< LOD	< LOD	676
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1322
	05-06	*	< LOD	< LOD	< LOD	< LOD	1459
	07-08	*	< LOD	< LOD	< LOD	< LOD	1800
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1099
	05-06	*	< LOD	< LOD	< LOD	< LOD	1165
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1146
	05-06	*	< LOD	< LOD	< LOD	< LOD	1296
	07-08	*	< LOD	< LOD	< LOD	< LOD	1280
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	588
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	490
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	939
	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	1081

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Rimsulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2284
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	654
	05-06	*	< LOD	< LOD	< LOD	< LOD	706
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1351
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1771
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1110
	05-06	*	< LOD	< LOD	< LOD	< LOD	1224
	07-08	*	< LOD	< LOD	< LOD	< LOD	1271
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1174
	05-06	*	< LOD	< LOD	< LOD	< LOD	1369
	07-08	*	< LOD	< LOD	< LOD	< LOD	1259
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	561
	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	463
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	715
	07-08	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	985
	05-06	*	< LOD	< LOD	< LOD	< LOD	998
	07-08	*	< LOD	< LOD	< LOD	< LOD	1080

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Rimsulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2282
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	653
	05-06	*	< LOD	< LOD	< LOD	< LOD	706
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1350
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1771
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1109
	05-06	*	< LOD	< LOD	< LOD	< LOD	1224
	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1173
	05-06	*	< LOD	< LOD	< LOD	< LOD	1369
	07-08	*	< LOD	< LOD	< LOD	< LOD	1258
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	560
	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	462
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	592
	05-06	*	< LOD	< LOD	< LOD	< LOD	715
	07-08	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	984
	05-06	*	< LOD	< LOD	< LOD	< LOD	998
	07-08	*	< LOD	< LOD	< LOD	< LOD	1080

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Sulfometuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2067
	05-06	*	< LOD	< LOD	< LOD	< LOD	2598
	07-08	*	< LOD	< LOD	< LOD	< LOD	2458
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	252
	05-06	*	< LOD	< LOD	< LOD	< LOD	345
	07-08	*	< LOD	< LOD	< LOD	< LOD	352
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	587
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	1543
	07-08	*	< LOD	< LOD	< LOD	< LOD	1733
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1007
	05-06	*	< LOD	< LOD	< LOD	< LOD	1233
	07-08	*	< LOD	< LOD	< LOD	< LOD	1226
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1060
	05-06	*	< LOD	< LOD	< LOD	< LOD	1365
	07-08	*	< LOD	< LOD	< LOD	< LOD	1232
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	441
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	454
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	569
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	916
	05-06	*	< LOD	< LOD	< LOD	< LOD	996
	07-08	*	< LOD	< LOD	< LOD	< LOD	1045

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Sulfometuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2065
	05-06	*	< LOD	< LOD	< LOD	< LOD	2598
	07-08	*	< LOD	< LOD	< LOD	< LOD	2456
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	252
	05-06	*	< LOD	< LOD	< LOD	< LOD	345
	07-08	*	< LOD	< LOD	< LOD	< LOD	352
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	586
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	371
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1227
	05-06	*	< LOD	< LOD	< LOD	< LOD	1543
	07-08	*	< LOD	< LOD	< LOD	< LOD	1733
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1006
	05-06	*	< LOD	< LOD	< LOD	< LOD	1233
	07-08	*	< LOD	< LOD	< LOD	< LOD	1225
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1059
	05-06	*	< LOD	< LOD	< LOD	< LOD	1365
	07-08	*	< LOD	< LOD	< LOD	< LOD	1231
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	440
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	453
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	569
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	556
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	915
	05-06	*	< LOD	< LOD	< LOD	< LOD	996
	07-08	*	< LOD	< LOD	< LOD	< LOD	1045

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Sulfosulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2391
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	344
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	681
	05-06	*	< LOD	< LOD	< LOD	< LOD	708
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1416
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1230
	07-08	*	< LOD	< LOD	< LOD	< LOD	1261
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1363
	07-08	*	< LOD	< LOD	< LOD	< LOD	1269
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	594
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1026
	05-06	*	< LOD	< LOD	< LOD	< LOD	997
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Sulfosulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2389
	05-06	*	< LOD	< LOD	< LOD	< LOD	2593
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	294
	05-06	*	< LOD	< LOD	< LOD	< LOD	344
	07-08	*	< LOD	< LOD	< LOD	< LOD	377
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	680
	05-06	*	< LOD	< LOD	< LOD	< LOD	708
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1415
	05-06	*	< LOD	< LOD	< LOD	< LOD	1541
	07-08	*	< LOD	< LOD	< LOD	< LOD	1768
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1169
	05-06	*	< LOD	< LOD	< LOD	< LOD	1230
	07-08	*	< LOD	< LOD	< LOD	< LOD	1260
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1363
	07-08	*	< LOD	< LOD	< LOD	< LOD	1268
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	593
	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	484
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	617
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	564
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1025
	05-06	*	< LOD	< LOD	< LOD	< LOD	997
	07-08	*	< LOD	< LOD	< LOD	< LOD	1068

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Thifensulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2355
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2495
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	370
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	677
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	375
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1387
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1750
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1145
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1252
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1210
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1243
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	566
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	479
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	542
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1022
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1056

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.08, 0.08, and 0.08 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Thifensulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2353
	05-06	*	< LOD	< LOD	< LOD	< LOD	2634
	07-08	*	< LOD	< LOD	< LOD	< LOD	2493
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	350
	07-08	*	< LOD	< LOD	< LOD	< LOD	370
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	676
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1386
	05-06	*	< LOD	< LOD	< LOD	< LOD	1566
	07-08	*	< LOD	< LOD	< LOD	< LOD	1750
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1144
	05-06	*	< LOD	< LOD	< LOD	< LOD	1247
	07-08	*	< LOD	< LOD	< LOD	< LOD	1251
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1209
	05-06	*	< LOD	< LOD	< LOD	< LOD	1387
	07-08	*	< LOD	< LOD	< LOD	< LOD	1242
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	565
	05-06	*	< LOD	< LOD	< LOD	< LOD	697
	07-08	*	< LOD	< LOD	< LOD	< LOD	478
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	616
	05-06	*	< LOD	< LOD	< LOD	< LOD	720
	07-08	*	< LOD	< LOD	< LOD	< LOD	541
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1021
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1056

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Triasulfuron (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2250
	05-06	*	< LOD	< LOD	< LOD	< LOD	2557
	07-08	*	< LOD	< LOD	< LOD	< LOD	2530
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	278
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	643
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	385
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1329
	05-06	*	< LOD	< LOD	< LOD	< LOD	1521
	07-08	*	< LOD	< LOD	< LOD	< LOD	1767
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1101
	05-06	*	< LOD	< LOD	< LOD	< LOD	1210
	07-08	*	< LOD	< LOD	< LOD	< LOD	1265
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1149
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347
	07-08	*	< LOD	< LOD	< LOD	< LOD	1265
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	549
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	488
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	580
	05-06	*	< LOD	< LOD	< LOD	< LOD	713
	07-08	*	< LOD	< LOD	< LOD	< LOD	547
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	973
	05-06	*	< LOD	< LOD	< LOD	< LOD	968
	07-08	*	< LOD	< LOD	< LOD	< LOD	1073

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.07, 0.07, and 0.07 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Triasulfuron (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2248
	05-06	*	< LOD	< LOD	< LOD	< LOD	2557
	07-08	*	< LOD	< LOD	< LOD	< LOD	2528
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	278
	05-06	*	< LOD	< LOD	< LOD	< LOD	341
	07-08	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	642
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1328
	05-06	*	< LOD	< LOD	< LOD	< LOD	1521
	07-08	*	< LOD	< LOD	< LOD	< LOD	1767
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1100
	05-06	*	< LOD	< LOD	< LOD	< LOD	1210
	07-08	*	< LOD	< LOD	< LOD	< LOD	1264
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1148
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347
	07-08	*	< LOD	< LOD	< LOD	< LOD	1264
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	548
	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	487
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	580
	05-06	*	< LOD	< LOD	< LOD	< LOD	713
	07-08	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	972
	05-06	*	< LOD	< LOD	< LOD	< LOD	968
	07-08	*	< LOD	< LOD	< LOD	< LOD	1073

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Triflurosulfuron-methyl (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2427
	05-06	*	< LOD	< LOD	< LOD	< LOD	2562
	07-08	*	< LOD	< LOD	< LOD	< LOD	2494
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	340
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	381
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1431
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1189
	05-06	*	< LOD	< LOD	< LOD	< LOD	1216
	07-08	*	< LOD	< LOD	< LOD	< LOD	1240
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1238
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	596
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	477
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	558
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1039
	05-06	*	< LOD	< LOD	< LOD	< LOD	972
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.05, 0.05, and 0.05 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary Triflurosulfuron-methyl (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2425
	05-06	*	< LOD	< LOD	< LOD	< LOD	2562
	07-08	*	< LOD	< LOD	< LOD	< LOD	2492
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	302
	05-06	*	< LOD	< LOD	< LOD	< LOD	340
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	379
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1430
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1739
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1188
	05-06	*	< LOD	< LOD	< LOD	< LOD	1216
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1237
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1253
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	595
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	634
	05-06	*	< LOD	< LOD	< LOD	< LOD	699
	07-08	*	< LOD	< LOD	< LOD	< LOD	557
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1038
	05-06	*	< LOD	< LOD	< LOD	< LOD	972
	07-08	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/SulfonylureaHerbicides_BiomonitoringSummary.html

Urinary N,N-diethyl-meta-toluamide (DEET) (2007 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2565
	09-10	*	< LOD	< LOD	< LOD	< LOD	2744
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	386
	09-10	*	< LOD	< LOD	< LOD	< LOD	400
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
	09-10	*	< LOD	< LOD	< LOD	< LOD	1307
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	630
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1286
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1279
	09-10	*	< LOD	< LOD	< LOD	< LOD	1401
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	600
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	570
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1071
	09-10	*	< LOD	< LOD	< LOD	< LOD	1199

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.083 and 0.083.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-diethyl-meta-toluamide (DEET) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2430
	13-14	*	< LOD	< LOD	< LOD	.103 (<LOD-.269)	2667
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	402
	13-14	*	< LOD	< LOD	< LOD	.205 (<LOD-.792)	421
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	390
	13-14	*	< LOD	< LOD	< LOD	.108 (<LOD-.161)	427
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1638
	13-14	*	< LOD	< LOD	< LOD	.099 (<LOD-.269)	1819
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.085 (<LOD-.162)	1232
	13-14	*	< LOD	< LOD	< LOD	.115 (<LOD-.510)	1345
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1198
	13-14	*	< LOD	< LOD	< LOD	.091 (<LOD-.155)	1322
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	289
	13-14	*	< LOD	< LOD	< LOD	< LOD	427
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	670
	13-14	*	< LOD	< LOD	< LOD	< LOD	588
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	784
	13-14	*	< LOD	< LOD	< LOD	.123 (<LOD-.431)	1016
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.094 (<LOD-.294)	557
	13-14	*	< LOD	< LOD	< LOD	< LOD	670
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	331
	13-14	*	< LOD	< LOD	< LOD	.132 (<LOD-.518)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.083 and 0.083, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-diethyl-meta-toluamide (DEET) (creatinine corrected) (2007 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2563
	09-10	*	< LOD	< LOD	< LOD	< LOD	2744
Age group							
6-11 years	07-08	*	< LOD	< LOD	< LOD	< LOD	380
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	400
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
	09-10	*	< LOD	< LOD	< LOD	< LOD	1307
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	630
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1278
	09-10	*	< LOD	< LOD	< LOD	< LOD	1401
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	498
	09-10	*	< LOD	< LOD	< LOD	< LOD	600
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	569
	09-10	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1071
	09-10	*	< LOD	< LOD	< LOD	< LOD	1199

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-diethyl-meta-toluamide (DEET) (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2430
	13-14	*	< LOD	< LOD	< LOD	.294 (<LOD-.367)	2665
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	402
	13-14	*	< LOD	< LOD	< LOD	.666 (<LOD-1.17)	421
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	390
	13-14	*	< LOD	< LOD	< LOD	.210 (<LOD-.489)	427
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1638
	13-14	*	< LOD	< LOD	< LOD	.280 (<LOD-.355)	1817
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.267 (<LOD-.345)	1232
	13-14	*	< LOD	< LOD	< LOD	.267 (<LOD-.618)	1344
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1198
	13-14	*	< LOD	< LOD	< LOD	.309 (<LOD-.367)	1321
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	289
	13-14	*	< LOD	< LOD	< LOD	< LOD	425
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	670
	13-14	*	< LOD	< LOD	< LOD	< LOD	588
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	784
	13-14	*	< LOD	< LOD	< LOD	.317 (<LOD-.587)	1016
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.255 (<LOD-.367)	557
	13-14	*	< LOD	< LOD	< LOD	< LOD	668
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	331
	13-14	*	< LOD	< LOD	< LOD	.489 (<LOD-.534)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (2007 – 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	3.50 (2.64-4.64)	2.37 (1.88-3.10)	9.14 (5.61-14.5)	33.9 (20.5-53.1)	79.2 (37.9-145)	2538
	09-10	4.54 (3.35-6.15)	3.40 (2.31-4.95)	13.8 (8.63-20.6)	51.9 (31.1-108)	165 (57.8-464)	2735
Age group							
6-11 years	07-08	4.44 (3.73-5.29)	3.44 (2.70-5.87)	12.7 (9.54-15.9)	42.0 (24.2-70.4)	79.7 (44.9-114)	378
	09-10	6.44 (3.72-11.1)	5.35 (2.58-8.86)	18.5 (8.15-37.9)	83.8 (28.4-439)	316 (41.2-3970)	385
12-19 years	07-08	5.26 (3.47-7.98)	4.37 (2.68-5.98)	13.1 (6.81-25.8)	35.4 (20.4-71.2)	71.2 (30.7-700)	380
	09-10	6.58 (4.49-9.66)	4.63 (2.82-8.64)	18.9 (10.7-33.6)	87.8 (32.9-186)	186 (31.1-1130)	398
20-59 years	07-08	3.33 (2.56-4.35)	2.23 (1.83-2.90)	7.95 (5.05-14.5)	30.8 (17.4-53.1)	75.6 (39.3-131)	1157
	09-10	4.39 (3.29-5.86)	3.33 (2.23-4.95)	14.0 (8.36-20.9)	51.4 (32.6-95.8)	138 (52.9-280)	1300
60 years and older	07-08	2.78 (1.75-4.42)	1.64 (.936-3.06)	6.15 (3.08-16.9)	34.7 (16.3-75.4)	103 (32.4-200)	623
	09-10	3.42 (2.39-4.91)	2.13 (1.45-4.00)	9.63 (5.33-17.1)	35.4 (19.7-63.8)	103 (43.2-346)	652
Gender							
Males	07-08	4.15 (2.88-6.00)	2.90 (2.13-4.34)	11.3 (6.63-19.7)	37.7 (20.7-82.0)	112 (34.7-556)	1269
	09-10	5.58 (3.94-7.90)	4.39 (2.67-6.24)	18.7 (10.8-30.6)	78.3 (37.3-174)	199 (96.2-525)	1340
Females	07-08	2.97 (2.32-3.80)	2.06 (1.64-2.59)	6.84 (4.41-10.8)	30.8 (15.0-40.8)	52.6 (36.4-103)	1269
	09-10	3.73 (2.79-4.98)	2.76 (1.87-4.24)	9.91 (6.35-15.9)	36.2 (22.4-70.4)	94.9 (40.2-278)	1395
Race/ethnicity							
Mexican Americans	07-08	3.70 (2.57-5.33)	3.26 (1.87-5.17)	9.63 (5.93-17.6)	28.0 (14.7-69.1)	69.1 (27.5-133)	490
	09-10	2.63 (1.61-4.28)	2.03 (.932-4.71)	7.35 (4.22-14.5)	23.1 (12.5-48.2)	48.9 (26.0-94.3)	599
Non-Hispanic blacks	07-08	4.36 (3.18-5.96)	3.54 (2.24-6.04)	10.3 (6.78-17.4)	31.9 (19.3-51.6)	62.4 (40.4-103)	562
	09-10	3.91 (2.85-5.35)	3.22 (2.24-4.75)	9.53 (5.88-14.4)	23.4 (18.0-33.4)	38.4 (29.1-60.5)	497
Non-Hispanic whites	07-08	3.47 (2.35-5.14)	2.22 (1.65-3.19)	9.12 (4.82-17.0)	36.5 (17.7-82.0)	86.9 (32.9-356)	1064
	09-10	5.48 (3.83-7.84)	4.31 (2.64-6.25)	17.7 (10.5-28.4)	67.9 (32.6-195)	200 (63.8-832)	1199

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.93 and 0.475.

Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (2011 – 2014)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.49 (1.88-3.29)	1.95 (1.45-2.59)	6.47 (4.52-8.28)	20.8 (12.6-42.0)	61.1 (25.2-181)	2426
	13-14	2.46 (1.84-3.30)	1.77 (1.34-2.30)	6.26 (4.10-9.15)	25.0 (13.2-46.1)	75.9 (31.7-218)	2663
Age group							
6-11 years	11-12	4.24 (2.76-6.53)	3.84 (2.32-6.11)	11.8 (7.06-17.2)	27.5 (17.7-84.9)	100 (24.6-448)	400
	13-14	4.82 (3.20-7.25)	3.64 (2.50-5.02)	11.4 (6.46-19.3)	41.6 (17.1-223)	202 (37.9-649)	420
12-19 years	11-12	3.91 (3.03-5.04)	3.46 (2.42-4.00)	9.64 (6.42-14.7)	25.0 (16.9-43.0)	60.1 (26.4-161)	390
	13-14	4.41 (2.95-6.59)	3.71 (2.58-7.24)	12.2 (7.70-19.1)	37.4 (19.1-79.7)	96.0 (37.7-172)	427
20 years and older	11-12	2.19 (1.66-2.90)	1.63 (1.22-2.21)	5.43 (3.64-7.44)	18.8 (10.4-38.4)	55.4 (23.9-159)	1636
	13-14	2.10 (1.55-2.86)	1.40 (1.10-1.84)	4.91 (3.21-7.99)	20.4 (10.7-40.1)	60.9 (26.0-221)	1816
Gender							
Males	11-12	2.87 (2.12-3.90)	2.42 (1.74-3.45)	7.31 (5.05-10.4)	25.2 (12.6-51.1)	57.3 (25.7-198)	1230
	13-14	2.94 (2.08-4.17)	2.10 (1.57-2.72)	7.41 (4.62-12.3)	31.5 (15.4-81.2)	103 (39.9-325)	1343
Females	11-12	2.17 (1.63-2.90)	1.60 (1.20-2.12)	5.32 (3.54-7.44)	17.7 (9.64-42.7)	63.7 (17.7-242)	1196
	13-14	2.07 (1.59-2.71)	1.52 (1.11-1.91)	5.13 (3.67-7.99)	18.9 (9.44-38.6)	43.8 (23.9-138)	1320
Race/ethnicity							
Mexican Americans	11-12	2.62 (1.15-5.96)	2.11 (.605-7.86)	8.37 (3.43-22.0)	32.9 (12.9-100)	75.6 (15.9-481)	289
	13-14	2.27 (1.58-3.26)	1.89 (1.03-2.91)	7.62 (3.80-10.3)	17.2 (11.0-26.0)	35.8 (18.8-106)	427
Non-Hispanic blacks	11-12	3.32 (2.41-4.57)	2.71 (2.08-3.55)	8.08 (4.73-12.2)	22.5 (11.4-55.1)	53.5 (22.5-157)	667
	13-14	2.56 (1.94-3.38)	2.18 (1.69-2.89)	5.54 (3.93-7.95)	16.0 (8.88-34.7)	35.7 (17.4-83.5)	585
Non-Hispanic whites	11-12	2.36 (1.71-3.28)	1.83 (1.39-2.50)	5.80 (3.89-8.10)	18.0 (9.01-53.0)	62.3 (16.9-252)	783
	13-14	2.62 (1.77-3.87)	1.72 (1.15-2.54)	6.96 (3.80-12.8)	31.5 (13.5-93.4)	103 (37.7-373)	1016
All Hispanics	11-12	2.85 (1.59-5.12)	2.11 (.964-4.45)	7.94 (3.77-15.9)	35.9 (14.8-100)	152 (24.6-481)	558
	13-14	2.12 (1.57-2.86)	1.73 (1.12-2.54)	5.68 (3.51-8.32)	15.7 (11.0-22.8)	26.6 (18.8-68.7)	670
Asians	11-12	1.40 (.933-2.09)	.959 (.544-1.88)	3.27 (1.80-7.62)	12.7 (6.77-28.8)	28.8 (13.3-50.2)	330
	13-14	1.68 (1.23-2.31)	1.02 (.656-1.54)	3.94 (2.14-6.41)	18.7 (10.8-44.6)	82.7 (26.5-251)	290

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.475 and 0.475, respectively.

Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (creatinine corrected) (2007 – 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	3.60 (2.79-4.65)	2.79 (2.14-3.55)	8.55 (5.49-13.2)	27.3 (17.8-47.9)	70.8 (34.1-170)	2537
	09-10	4.74 (3.48-6.46)	3.35 (2.30-5.26)	12.9 (8.53-20.6)	44.6 (28.3-86.3)	131 (47.0-405)	2735
Age group							
6-11 years	07-08	5.64 (4.72-6.75)	4.84 (3.65-5.78)	14.2 (10.7-19.8)	47.7 (34.2-55.1)	88.6 (47.9-182)	378
	09-10	8.72 (5.03-15.1)	6.42 (4.02-11.6)	23.5 (13.2-36.7)	75.4 (28.6-673)	365 (46.2-4980)	385
12-19 years	07-08	4.08 (2.81-5.93)	2.96 (2.14-5.36)	11.0 (6.38-16.0)	24.3 (14.8-53.4)	53.4 (19.3-345)	379
	09-10	5.65 (3.76-8.50)	3.76 (2.56-6.22)	16.5 (7.29-31.7)	68.6 (25.3-182)	154 (25.3-1270)	398
20-59 years	07-08	3.34 (2.61-4.27)	2.73 (1.99-3.46)	7.57 (4.92-12.1)	24.8 (14.9-44.7)	57.8 (30.9-117)	1157
	09-10	4.41 (3.25-5.97)	2.98 (2.11-5.32)	11.7 (7.71-19.6)	39.1 (24.7-82.6)	112 (51.3-228)	1300
60 years and older	07-08	3.42 (2.33-5.02)	2.47 (1.45-3.64)	7.33 (4.25-16.8)	33.8 (15.9-86.0)	93.3 (34.2-244)	623
	09-10	4.06 (2.95-5.59)	2.68 (2.10-3.96)	10.8 (6.79-15.9)	37.7 (22.2-51.1)	108 (42.7-393)	652
Gender							
Males	07-08	3.46 (2.46-4.87)	2.72 (1.76-3.73)	8.68 (5.34-14.4)	27.8 (16.9-69.4)	87.0 (27.8-403)	1269
	09-10	4.97 (3.49-7.08)	3.29 (2.14-5.94)	14.7 (9.13-24.0)	60.0 (28.5-134)	185 (74.8-433)	1340
Females	07-08	3.74 (2.99-4.68)	2.88 (2.27-3.63)	8.55 (5.36-13.2)	27.2 (16.2-46.3)	54.8 (34.2-117)	1268
	09-10	4.54 (3.40-6.05)	3.35 (2.39-4.67)	11.8 (7.55-18.4)	35.3 (24.2-53.4)	77.6 (36.7-252)	1395
Race/ethnicity							
Mexican Americans	07-08	3.79 (2.57-5.58)	3.60 (1.99-5.96)	9.91 (6.55-16.9)	27.8 (15.0-60.6)	60.6 (24.4-107)	490
	09-10	2.74 (1.75-4.28)	2.03 (1.12-5.18)	7.57 (3.92-14.0)	23.3 (13.6-31.8)	37.4 (23.6-90.5)	599
Non-Hispanic blacks	07-08	3.33 (2.46-4.49)	2.74 (1.91-3.76)	7.07 (4.88-11.9)	22.5 (12.6-45.1)	53.9 (28.7-103)	561
	09-10	2.98 (2.26-3.94)	2.41 (1.70-3.37)	6.73 (4.34-9.46)	16.5 (13.0-20.4)	30.6 (19.4-51.1)	497
Non-Hispanic whites	07-08	3.78 (2.69-5.32)	2.82 (2.05-4.02)	8.70 (5.23-14.9)	30.7 (16.7-57.2)	76.9 (26.7-432)	1064
	09-10	5.97 (4.13-8.64)	4.41 (2.61-7.43)	17.4 (10.7-26.7)	61.1 (29.0-189)	189 (56.4-849)	1199

Urinary 3-(Diethylcarbamoyl) benzoic acid (DCBA) (creatinine corrected) (2011 – 2014)

Metabolite of DEET

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.61 (1.96-3.46)	2.07 (1.59-2.63)	5.40 (3.90-7.83)	19.0 (12.7-36.4)	60.1 (22.5-150)	2426
	13-14	2.63 (1.94-3.56)	1.85 (1.47-2.26)	5.24 (3.92-7.72)	23.8 (10.3-55.1)	68.9 (26.9-223)	2661
Age group							
6-11 years	11-12	5.96 (3.63-9.80)	5.22 (3.17-7.29)	15.9 (7.97-21.5)	43.3 (18.5-208)	105 (38.0-1120)	400
	13-14	6.21 (4.04-9.55)	4.14 (2.92-5.43)	13.5 (7.13-28.5)	62.2 (23.4-251)	251 (62.2-1060)	420
12-19 years	11-12	3.49 (2.71-4.49)	3.07 (2.40-3.69)	6.86 (5.21-10.5)	21.3 (13.2-40.3)	44.2 (17.4-203)	390
	13-14	3.77 (2.49-5.72)	3.36 (2.02-4.98)	7.08 (5.05-17.1)	34.0 (12.6-86.6)	86.6 (31.1-198)	427
20 years and older	11-12	2.27 (1.72-3.01)	1.79 (1.34-2.42)	4.36 (3.29-6.53)	15.6 (10.5-28.5)	59.3 (21.1-112)	1636
	13-14	2.27 (1.67-3.08)	1.53 (1.30-1.85)	4.43 (3.23-6.48)	18.1 (8.08-46.6)	53.0 (20.3-212)	1814
Gender							
Males	11-12	2.62 (1.89-3.63)	2.07 (1.51-2.80)	6.06 (3.88-9.34)	19.3 (13.0-31.0)	55.8 (19.4-176)	1230
	13-14	2.69 (1.84-3.93)	1.87 (1.35-2.39)	6.08 (3.85-9.76)	30.8 (12.5-64.2)	86.6 (38.8-347)	1342
Females	11-12	2.59 (1.97-3.42)	2.07 (1.60-2.66)	5.18 (3.77-7.04)	17.8 (10.4-45.1)	61.4 (19.3-112)	1196
	13-14	2.57 (1.98-3.33)	1.82 (1.53-2.17)	4.96 (3.92-6.40)	19.9 (7.90-45.7)	47.7 (23.2-205)	1319
Race/ethnicity							
Mexican Americans	11-12	2.61 (1.12-6.06)	2.23 (.632-8.29)	8.29 (3.05-20.9)	27.9 (8.78-126)	66.3 (11.2-360)	289
	13-14	2.32 (1.63-3.30)	2.01 (1.32-2.94)	5.87 (3.92-8.12)	16.6 (8.35-34.9)	38.2 (16.6-88.2)	425
Non-Hispanic blacks	11-12	2.45 (1.80-3.33)	2.04 (1.52-2.56)	4.78 (3.20-8.50)	14.2 (8.73-27.3)	28.8 (14.8-94.6)	667
	13-14	1.97 (1.46-2.66)	1.50 (1.05-2.57)	4.61 (2.97-5.75)	10.3 (6.48-23.4)	25.4 (10.8-78.8)	585
Non-Hispanic whites	11-12	2.64 (1.89-3.67)	2.08 (1.54-3.01)	5.17 (3.72-7.29)	19.3 (11.5-46.0)	62.3 (17.4-167)	783
	13-14	2.96 (1.99-4.41)	1.89 (1.42-2.58)	5.87 (3.83-12.2)	33.0 (12.1-103)	118 (36.0-598)	1016
All Hispanics	11-12	2.87 (1.59-5.16)	2.18 (1.10-4.73)	8.13 (3.71-14.4)	27.1 (11.2-104)	104 (19.0-830)	558
	13-14	2.18 (1.63-2.92)	1.78 (1.44-2.32)	4.88 (3.47-6.48)	13.3 (7.83-23.4)	30.2 (16.6-54.6)	668
Asians	11-12	1.85 (1.26-2.73)	1.40 (.933-2.24)	3.95 (2.25-8.68)	13.7 (7.88-33.3)	33.3 (14.8-55.8)	330
	13-14	2.13 (1.52-2.99)	1.29 (1.02-1.81)	4.19 (2.75-7.36)	21.1 (9.36-46.6)	89.2 (35.3-426)	290

Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (2007 – 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	.229 (<LOD-.525)	.780 (.326-1.51)	2562
	09-10	*	< LOD	< LOD	.455 (.162-.956)	1.34 (.644-3.10)	2736
Age group							
6-11 years	07-08	*	< LOD	< LOD	.275 (.168-.433)	.640 (.264-2.64)	380
	09-10	*	< LOD	< LOD	.655 (<LOD-2.93)	2.82 (.205-24.6)	385
12-19 years	07-08	*	< LOD	< LOD	.356 (<LOD-.879)	.665 (.165-8.14)	386
	09-10	*	< LOD	< LOD	.472 (<LOD-1.59)	1.20 (.201-4.11)	398
20-59 years	07-08	*	< LOD	< LOD	.188 (<LOD-.413)	.767 (.335-1.30)	1167
	09-10	*	< LOD	< LOD	.498 (.172-.956)	1.34 (.729-2.29)	1304
60 years and older	07-08	*	< LOD	< LOD	.256 (<LOD-.787)	.787 (.194-1.81)	629
	09-10	*	< LOD	< LOD	.257 (.106-.512)	.840 (.521-2.46)	649
Gender							
Males	07-08	*	< LOD	< LOD	.325 (.091-.909)	1.05 (.249-4.86)	1283
	09-10	*	< LOD	< LOD	.744 (.323-1.43)	1.81 (.946-3.94)	1339
Females	07-08	*	< LOD	< LOD	.165 (<LOD-.326)	.512 (.256-.968)	1279
	09-10	*	< LOD	< LOD	.220 (<LOD-.521)	.796 (.329-2.05)	1397
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	.216 (.092-.509)	.509 (.207-.989)	499
	09-10	*	< LOD	< LOD	.228 (<LOD-.504)	.507 (.223-.866)	598
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.310 (.091-.470)	.640 (.378-1.29)	567
	09-10	*	< LOD	< LOD	.135 (<LOD-.292)	.449 (.212-.884)	503
Non-Hispanic whites	07-08	*	< LOD	< LOD	.255 (<LOD-.861)	.884 (.225-4.84)	1071
	09-10	*	< LOD	< LOD	.644 (.182-1.34)	1.89 (.770-5.34)	1195

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.089 and 0.089.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (2011 – 2014)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	.536 (<LOD-1.46)	2419
	13-14	*	< LOD	< LOD	< LOD	.737 (.168-2.11)	2659
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	.683 (<LOD-1.63)	400
	13-14	*	< LOD	< LOD	.285 (<LOD-1.55)	1.45 (.265-6.31)	420
12-19 years	11-12	*	< LOD	< LOD	< LOD	.526 (.181-.966)	389
	13-14	*	< LOD	< LOD	< LOD	.701 (.177-1.33)	424
20 years and older	11-12	*	< LOD	< LOD	< LOD	.536 (<LOD-1.47)	1630
	13-14	*	< LOD	< LOD	< LOD	.613 (<LOD-2.25)	1815
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.647 (.185-1.46)	1230
	13-14	*	< LOD	< LOD	.175 (<LOD-.737)	.916 (.249-2.76)	1338
Females	11-12	*	< LOD	< LOD	< LOD	.337 (<LOD-1.71)	1189
	13-14	*	< LOD	< LOD	< LOD	.366 (<LOD-1.21)	1321
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.790 (<LOD-1.20)	288
	13-14	*	< LOD	< LOD	< LOD	.169 (<LOD-.518)	425
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	.475 (<LOD-1.19)	668
	13-14	*	< LOD	< LOD	< LOD	.423 (<LOD-1.60)	586
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.631 (<LOD-2.24)	778
	13-14	*	< LOD	< LOD	.188 (<LOD-.840)	.933 (.285-3.40)	1013
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.964 (<LOD-2.76)	555
	13-14	*	< LOD	< LOD	< LOD	< LOD	668
Asians	11-12	*	< LOD	< LOD	< LOD	.125 (<LOD-.372)	330
	13-14	*	< LOD	< LOD	< LOD	.651 (<LOD-3.23)	290

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.089 and 0.089, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (creatinine corrected) (2007 – 2010)

Metabolite of DEET

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	.331 (<LOD-.452)	.628 (.393-1.32)	2560
	09-10	*	< LOD	< LOD	.449 (.300-.720)	1.13 (.548-2.41)	2736
Age group							
6-11 years	07-08	*	< LOD	< LOD	.370 (.289-.524)	.831 (.347-1.37)	380
	09-10	*	< LOD	< LOD	.572 (<LOD-3.40)	3.12 (.370-18.4)	385
12-19 years	07-08	*	< LOD	< LOD	.253 (<LOD-.555)	.544 (.191-1.76)	384
	09-10	*	< LOD	< LOD	.436 (<LOD-.869)	.869 (.246-8.42)	398
20-59 years	07-08	*	< LOD	< LOD	.331 (<LOD-.441)	.582 (.441-.866)	1167
	09-10	*	< LOD	< LOD	.468 (.300-.702)	1.10 (.572-1.79)	1304
60 years and older	07-08	*	< LOD	< LOD	.394 (<LOD-.701)	1.01 (.389-2.48)	629
	09-10	*	< LOD	< LOD	.395 (.315-.489)	.875 (.548-2.41)	649
Gender							
Males	07-08	*	< LOD	< LOD	.300 (.176-.826)	.866 (.304-3.33)	1282
	09-10	*	< LOD	< LOD	.524 (.280-1.39)	1.45 (.718-3.16)	1339
Females	07-08	*	< LOD	< LOD	.341 (<LOD-.393)	.572 (.419-.734)	1278
	09-10	*	< LOD	< LOD	.419 (<LOD-.488)	.723 (.458-1.85)	1397
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	.315 (.203-.446)	.467 (.337-.720)	498
	09-10	*	< LOD	< LOD	.297 (<LOD-.401)	.415 (.299-.718)	598
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.234 (.175-.411)	.487 (.315-1.05)	566
	09-10	*	< LOD	< LOD	.221 (<LOD-.262)	.362 (.246-.648)	503
Non-Hispanic whites	07-08	*	< LOD	< LOD	.343 (<LOD-.583)	.826 (.349-2.99)	1071
	09-10	*	< LOD	< LOD	.531 (.305-1.36)	1.59 (.524-5.83)	1195

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB) (creatinine corrected) (2011 – 2014)

Metabolite of DEET

Geometric mean and selected percentiles of concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	.661 (<LOD-1.37)	2419
	13-14	*	< LOD	< LOD	< LOD	.721 (.346-2.03)	2657
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	1.05 (<LOD-6.45)	400
	13-14	*	< LOD	< LOD	.573 (<LOD-1.40)	1.69 (.594-7.63)	420
12-19 years	11-12	*	< LOD	< LOD	< LOD	.405 (.252-1.08)	389
	13-14	*	< LOD	< LOD	< LOD	.580 (.332-1.23)	424
20 years and older	11-12	*	< LOD	< LOD	< LOD	.661 (<LOD-1.37)	1630
	13-14	*	< LOD	< LOD	< LOD	.629 (<LOD-2.11)	1813
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.743 (.331-1.51)	1230
	13-14	*	< LOD	< LOD	.315 (<LOD-.661)	1.03 (.393-3.94)	1337
Females	11-12	*	< LOD	< LOD	< LOD	.617 (<LOD-1.29)	1189
	13-14	*	< LOD	< LOD	< LOD	.542 (<LOD-1.61)	1320
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.786 (<LOD-1.29)	288
	13-14	*	< LOD	< LOD	< LOD	.370 (<LOD-.676)	423
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	.415 (<LOD-.954)	668
	13-14	*	< LOD	< LOD	< LOD	.333 (<LOD-1.12)	586
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.699 (<LOD-1.51)	778
	13-14	*	< LOD	< LOD	.393 (<LOD-.886)	1.03 (.419-4.64)	1013
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.798 (<LOD-1.64)	555
	13-14	*	< LOD	< LOD	< LOD	< LOD	666
Asians	11-12	*	< LOD	< LOD	< LOD	.490 (<LOD-.786)	330
	13-14	*	< LOD	< LOD	< LOD	.572 (<LOD-3.14)	290

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Carbofuranphenol (1999 – 2004)

Metabolite of Benfuracarb, Carbofuran, Carbosulfan, and Furathiocar

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	.770 (<LOD-1.30)	1994
	01-02	*	< LOD	< LOD	< LOD	< LOD	3030
	03-04	*	< LOD	< LOD	< LOD	< LOD	2390
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	.450 (<LOD-2.20)	482
	01-02	*	< LOD	< LOD	< LOD	< LOD	578
	03-04	*	< LOD	< LOD	< LOD	< LOD	293
12-19 years	99-00	*	< LOD	< LOD	< LOD	.570 (<LOD-1.20)	681
	01-02	*	< LOD	< LOD	< LOD	< LOD	827
	03-04	*	< LOD	< LOD	< LOD	< LOD	684
20-59 years	99-00	*	< LOD	< LOD	< LOD	.840 (<LOD-1.50)	831
	01-02	*	< LOD	< LOD	< LOD	< LOD	1125
	03-04	*	< LOD	< LOD	< LOD	< LOD	902
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	500
	03-04	*	< LOD	< LOD	< LOD	< LOD	511
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	.740 (<LOD-1.50)	973
	01-02	*	< LOD	< LOD	< LOD	< LOD	1423
	03-04	*	< LOD	< LOD	< LOD	< LOD	1164
Females	99-00	*	< LOD	< LOD	< LOD	.840 (<LOD-1.50)	1021
	01-02	*	< LOD	< LOD	< LOD	< LOD	1607
	03-04	*	< LOD	< LOD	< LOD	< LOD	1226
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	.590 (<LOD-2.00)	1.90 (<LOD-5.10)	696
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	03-04	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.550 (<LOD-1.60)	521
	01-02	*	< LOD	< LOD	< LOD	< LOD	770
	03-04	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	.740 (<LOD-1.50)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	1272
	03-04	*	< LOD	< LOD	< LOD	< LOD	1054

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, and 03-04 are 0.4, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Carbofuran_BiomonitoringSummary.html

Urinary Carbofuranphenol (creatinine corrected) (1999 – 2004)

Metabolite of Benfuracarb, Carbofuran, Carbosulfan, and Furathiocar

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	.778 (<LOD-1.00)	1994
	01-02	*	< LOD	< LOD	< LOD	< LOD	3029
	03-04	*	< LOD	< LOD	< LOD	< LOD	2388
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	.988 (<LOD-2.80)	482
	01-02	*	< LOD	< LOD	< LOD	< LOD	578
	03-04	*	< LOD	< LOD	< LOD	< LOD	293
12-19 years	99-00	*	< LOD	< LOD	< LOD	.482 (<LOD-.853)	681
	01-02	*	< LOD	< LOD	< LOD	< LOD	826
	03-04	*	< LOD	< LOD	< LOD	< LOD	683
20-59 years	99-00	*	< LOD	< LOD	< LOD	.875 (<LOD-1.06)	831
	01-02	*	< LOD	< LOD	< LOD	< LOD	1125
	03-04	*	< LOD	< LOD	< LOD	< LOD	901
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	500
	03-04	*	< LOD	< LOD	< LOD	< LOD	511
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	.667 (<LOD-1.08)	973
	01-02	*	< LOD	< LOD	< LOD	< LOD	1423
	03-04	*	< LOD	< LOD	< LOD	< LOD	1163
Females	99-00	*	< LOD	< LOD	< LOD	.881 (<LOD-1.13)	1021
	01-02	*	< LOD	< LOD	< LOD	< LOD	1606
	03-04	*	< LOD	< LOD	< LOD	< LOD	1225
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	.778 (<LOD-1.94)	1.83 (<LOD-4.16)	696
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	03-04	*	< LOD	< LOD	< LOD	< LOD	567
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.700 (<LOD-1.08)	521
	01-02	*	< LOD	< LOD	< LOD	< LOD	769
	03-04	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	.737 (<LOD-.929)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	1272
	03-04	*	< LOD	< LOD	< LOD	< LOD	1053

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Carbofuran_BiomonitoringSummary.html

Urinary 2-Isopropoxyphenol (1999 – 2004)

Metabolite of Propoxur

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1917
	01-02	*	< LOD	< LOD	< LOD	< LOD	2994
	03-04	*	< LOD	< LOD	< LOD	< LOD	2387
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	456
	01-02	*	< LOD	< LOD	< LOD	< LOD	574
	03-04	*	< LOD	< LOD	< LOD	< LOD	295
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	655
	01-02	*	< LOD	< LOD	< LOD	< LOD	820
	03-04	*	< LOD	< LOD	< LOD	< LOD	686
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	806
	01-02	*	< LOD	< LOD	< LOD	< LOD	1109
	03-04	*	< LOD	< LOD	< LOD	< LOD	900
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	491
	03-04	*	< LOD	< LOD	< LOD	< LOD	506
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	936
	01-02	*	< LOD	< LOD	< LOD	< LOD	1406
	03-04	*	< LOD	< LOD	< LOD	< LOD	1161
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	981
	01-02	*	< LOD	< LOD	< LOD	< LOD	1588
	03-04	*	< LOD	< LOD	< LOD	< LOD	1226
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	664
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	594
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	500
	01-02	*	< LOD	< LOD	< LOD	< LOD	770
	03-04	*	< LOD	< LOD	< LOD	< LOD	601
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	585
	01-02	*	< LOD	< LOD	< LOD	< LOD	1241
	03-04	*	< LOD	< LOD	< LOD	< LOD	1041

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, and 03-04 are 1.1, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Propoxur_BiomonitoringSummary.html

Urinary 2-Isopropoxyphenol (creatinine corrected) (1999 – 2004)

Metabolite of Propoxur

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1917
	01-02	*	< LOD	< LOD	< LOD	< LOD	2993
	03-04	*	< LOD	< LOD	< LOD	< LOD	2385
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	456
	01-02	*	< LOD	< LOD	< LOD	< LOD	574
	03-04	*	< LOD	< LOD	< LOD	< LOD	295
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	655
	01-02	*	< LOD	< LOD	< LOD	< LOD	819
	03-04	*	< LOD	< LOD	< LOD	< LOD	685
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	806
	01-02	*	< LOD	< LOD	< LOD	< LOD	1109
	03-04	*	< LOD	< LOD	< LOD	< LOD	899
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	491
	03-04	*	< LOD	< LOD	< LOD	< LOD	506
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	936
	01-02	*	< LOD	< LOD	< LOD	< LOD	1406
	03-04	*	< LOD	< LOD	< LOD	< LOD	1160
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	981
	01-02	*	< LOD	< LOD	< LOD	< LOD	1587
	03-04	*	< LOD	< LOD	< LOD	< LOD	1225
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	664
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	593
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	500
	01-02	*	< LOD	< LOD	< LOD	< LOD	769
	03-04	*	< LOD	< LOD	< LOD	< LOD	601
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	585
	01-02	*	< LOD	< LOD	< LOD	< LOD	1241
	03-04	*	< LOD	< LOD	< LOD	< LOD	1040

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Propoxur_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenol (2003 – 2010)‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	2525
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	2548
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	2604
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	2749
Age group							
6-11 years	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	314
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.400)	.400 (.300-.500)	356
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.100-.300)	.300 (.200-.500)	389
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	415
12-19 years	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	722
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	702
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.200-.500)	401
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.500)	420
20 years and older	03-04	*	< LOD	.100 (.100-.100)	.300 (.200-.300)	.400 (.300-.500)	1489
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.500)	1490
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1814
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1914
Gender							
Males	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	1231
	05-06	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.500)	1270
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	1294
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1399
Females	03-04	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.400)	1294
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.400)	.500 (.300-.500)	1278
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1310
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.300 (.200-.300)	1350
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.400)	617
	05-06	*	< LOD	.100 (<LOD-.200)	.300 (.200-.300)	.400 (.300-.500)	637
	07-08	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	531
	09-10	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	566
Non-Hispanic blacks	03-04	*	< LOD	.200 (.100-.200)	.300 (.200-.500)	.400 (.300-.700)	636
	05-06	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.300-.500)	678
	07-08	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.400 (.300-.500)	597
	09-10	*	< LOD	.100 (<LOD-.100)	.200 (.200-.200)	.200 (.200-.300)	516
Non-Hispanic whites	03-04	*	< LOD	.100 (.100-.100)	.200 (.200-.300)	.400 (.300-.400)	1077
	05-06	*	< LOD	.100 (.100-.200)	.300 (.200-.300)	.400 (.300-.600)	1038
	07-08	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1077
	09-10	*	< LOD	< LOD	.200 (.200-.200)	.300 (.200-.300)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html

Urinary 2,4,5-Trichlorophenol (creatinine corrected) (2003 – 2010)‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.170 (.160-.180)	.280 (.260-.310)	.370 (.330-.420)	2522
	05-06	*	< LOD	.160 (.150-.180)	.290 (.260-.320)	.410 (.360-.450)	2548
	07-08	*	< LOD	.150 (<LOD-.160)	.280 (.230-.320)	.390 (.330-.470)	2604
	09-10	*	< LOD	< LOD	.260 (.240-.280)	.350 (.320-.390)	2749
Age group							
6-11 years	03-04	*	< LOD	.180 (.150-.230)	.290 (.250-.320)	.370 (.310-.540)	314
	05-06	*	< LOD	.180 (.140-.200)	.310 (.210-.450)	.450 (.320-.610)	356
	07-08	*	< LOD	.180 (<LOD-.190)	.270 (.210-.390)	.430 (.270-.580)	389
	09-10	*	< LOD	< LOD	.320 (.240-.350)	.390 (.320-.470)	415
12-19 years	03-04	*	< LOD	.120 (.100-.140)	.200 (.170-.220)	.240 (.220-.280)	720
	05-06	*	< LOD	.120 (.110-.130)	.210 (.180-.240)	.290 (.240-.330)	702
	07-08	*	< LOD	.100 (<LOD-.120)	.170 (.150-.210)	.250 (.170-.310)	401
	09-10	*	< LOD	.110 (<LOD-.130)	.190 (.150-.250)	.280 (.190-.380)	420
20 years and older	03-04	*	< LOD	.180 (.160-.180)	.290 (.270-.320)	.390 (.350-.470)	1488
	05-06	*	< LOD	.170 (.150-.190)	.300 (.260-.330)	.410 (.370-.470)	1490
	07-08	*	< LOD	.150 (<LOD-.180)	.290 (.230-.350)	.410 (.340-.500)	1814
	09-10	*	< LOD	< LOD	.270 (.240-.280)	.350 (.320-.410)	1914
Gender							
Males	03-04	*	< LOD	.130 (.110-.150)	.230 (.190-.260)	.320 (.270-.350)	1230
	05-06	*	< LOD	.130 (.120-.140)	.220 (.190-.240)	.310 (.260-.360)	1270
	07-08	*	< LOD	.110 (<LOD-.120)	.190 (.180-.230)	.300 (.230-.340)	1294
	09-10	*	< LOD	< LOD	.210 (.190-.230)	.280 (.240-.330)	1399
Females	03-04	*	< LOD	.200 (.180-.210)	.320 (.290-.350)	.440 (.350-.510)	1292
	05-06	*	< LOD	.210 (.180-.230)	.350 (.300-.410)	.470 (.410-.550)	1278
	07-08	*	< LOD	.190 (<LOD-.230)	.330 (.280-.410)	.470 (.370-.580)	1310
	09-10	*	< LOD	.180 (<LOD-.190)	.300 (.280-.330)	.420 (.330-.470)	1350
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	.140 (<LOD-.150)	.240 (.200-.280)	.330 (.280-.460)	616
	05-06	*	< LOD	.140 (<LOD-.160)	.240 (.190-.320)	.350 (.290-.380)	637
	07-08	*	< LOD	< LOD	.210 (.180-.250)	.270 (.240-.320)	531
	09-10	*	< LOD	< LOD	.190 (<LOD-.230)	.290 (.220-.330)	566
Non-Hispanic blacks	03-04	*	< LOD	.120 (.100-.150)	.230 (.170-.290)	.310 (.230-.390)	635
	05-06	*	< LOD	.110 (.100-.140)	.210 (.170-.260)	.320 (.260-.360)	678
	07-08	*	< LOD	.120 (.100-.140)	.200 (.170-.250)	.290 (.230-.420)	597
	09-10	*	< LOD	.090 (<LOD-.110)	.160 (.130-.200)	.220 (.160-.380)	516
Non-Hispanic whites	03-04	*	< LOD	.180 (.160-.190)	.290 (.260-.320)	.370 (.340-.440)	1076
	05-06	*	< LOD	.180 (.160-.190)	.300 (.270-.350)	.410 (.360-.500)	1038
	07-08	*	< LOD	.160 (<LOD-.190)	.300 (.250-.360)	.440 (.330-.510)	1077
	09-10	*	< LOD	< LOD	.280 (.250-.320)	.370 (.330-.410)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html

Urinary 2,4,6-Trichlorophenol (2003 – 2010)‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.500 (<LOD-.600)	1.00 (.800-1.20)	1.40 (1.20-1.80)	2525
	05-06	*	< LOD	.600 (<LOD-.700)	1.00 (.800-1.20)	1.40 (1.20-1.80)	2548
	07-08	*	< LOD	< LOD	.800 (.700-.900)	1.20 (1.00-1.30)	2604
	09-10	*	< LOD	.500 (<LOD-.600)	.800 (.700-.900)	1.10 (1.00-1.40)	2749
Age group							
6-11 years	03-04	*	< LOD	.600 (.500-.700)	1.10 (.800-1.40)	1.90 (1.10-3.10)	314
	05-06	*	< LOD	.700 (.600-.900)	1.30 (1.00-2.30)	2.70 (1.30-5.40)	356
	07-08	*	< LOD	.600 (<LOD-.700)	1.10 (.900-1.40)	1.60 (1.30-2.10)	389
	09-10	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.20)	1.30 (.900-2.20)	415
12-19 years	03-04	*	< LOD	.600 (.500-.800)	1.20 (.900-1.70)	1.80 (1.50-2.10)	722
	05-06	*	< LOD	.600 (<LOD-.800)	1.00 (.800-1.30)	1.30 (1.20-1.70)	702
	07-08	*	< LOD	.600 (<LOD-.700)	.800 (.700-1.10)	1.10 (.800-1.70)	401
	09-10	*	< LOD	.600 (<LOD-.700)	.900 (.700-1.30)	1.30 (.900-1.90)	420
20 years and older	03-04	*	< LOD	.500 (<LOD-.600)	1.00 (.800-1.10)	1.30 (1.10-1.70)	1489
	05-06	*	< LOD	.600 (<LOD-.700)	1.00 (.800-1.20)	1.30 (1.20-1.80)	1490
	07-08	*	< LOD	< LOD	.800 (.700-.900)	1.10 (.900-1.30)	1814
	09-10	*	< LOD	< LOD	.800 (.700-.900)	1.10 (1.00-1.20)	1914
Gender							
Males	03-04	*	< LOD	.600 (<LOD-.600)	1.00 (.800-1.10)	1.30 (1.10-1.80)	1231
	05-06	*	< LOD	.600 (<LOD-.800)	1.10 (.900-1.30)	1.60 (1.20-2.00)	1270
	07-08	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.00)	1.20 (1.10-1.40)	1294
	09-10	*	< LOD	< LOD	.800 (.700-.900)	1.10 (1.00-1.20)	1399
Females	03-04	*	< LOD	.500 (<LOD-.600)	1.10 (.900-1.20)	1.40 (1.10-2.00)	1294
	05-06	*	< LOD	.500 (<LOD-.600)	.900 (.800-1.20)	1.30 (1.10-1.70)	1278
	07-08	*	< LOD	< LOD	.800 (.700-.900)	1.10 (.900-1.40)	1310
	09-10	*	< LOD	.500 (<LOD-.600)	.800 (.700-1.00)	1.10 (.900-1.60)	1350
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	.700 (.600-.800)	1.20 (1.10-1.60)	1.80 (1.30-2.00)	617
	05-06	*	< LOD	.600 (.500-.700)	1.00 (.800-1.20)	1.30 (1.20-1.70)	637
	07-08	*	< LOD	< LOD	.700 (.700-.900)	1.00 (.900-1.20)	531
	09-10	*	< LOD	.500 (<LOD-.600)	.900 (.700-1.10)	1.10 (.900-1.30)	566
Non-Hispanic blacks	03-04	*	< LOD	.900 (.700-1.00)	1.40 (1.10-1.90)	2.00 (1.50-2.70)	636
	05-06	*	< LOD	.800 (.700-1.10)	1.50 (1.20-1.90)	2.20 (1.60-3.30)	678
	07-08	*	< LOD	.600 (.500-.600)	1.00 (.900-1.10)	1.30 (1.10-1.60)	597
	09-10	*	< LOD	.700 (.600-.800)	1.10 (.900-1.30)	1.50 (1.20-2.00)	516
Non-Hispanic whites	03-04	*	< LOD	< LOD	.800 (.700-1.00)	1.20 (1.00-1.50)	1077
	05-06	*	< LOD	.500 (<LOD-.700)	.900 (.700-1.30)	1.30 (1.10-1.80)	1038
	07-08	*	< LOD	< LOD	.800 (.700-.900)	1.20 (1.00-1.40)	1077
	09-10	*	< LOD	< LOD	.700 (.600-.900)	1.00 (.800-1.30)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.5, 0.5, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html

Urinary 2,4,6-Trichlorophenol (creatinine corrected) (2003 – 2010)‡

Metabolite of Several Organochlorine Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.710 (<LOD-.780)	1.25 (1.17-1.35)	1.75 (1.59-2.06)	2522
	05-06	*	< LOD	.720 (<LOD-.760)	1.27 (1.17-1.38)	1.75 (1.59-1.94)	2548
	07-08	*	< LOD	< LOD	1.25 (1.06-1.42)	1.75 (1.52-2.19)	2604
	09-10	*	< LOD	.710 (<LOD-.760)	1.21 (1.13-1.35)	1.67 (1.55-1.84)	2749
Age group							
6-11 years	03-04	*	< LOD	.920 (.850-1.13)	1.59 (1.22-1.91)	2.11 (1.46-4.55)	314
	05-06	*	< LOD	.880 (.740-1.06)	1.59 (1.21-2.06)	2.50 (1.61-5.20)	356
	07-08	*	< LOD	.900 (<LOD-.930)	1.46 (1.14-1.67)	2.33 (1.52-2.92)	389
	09-10	*	< LOD	.850 (<LOD-1.03)	1.59 (1.17-1.74)	1.85 (1.67-2.33)	415
12-19 years	03-04	*	< LOD	.580 (.510-.660)	.970 (.830-1.10)	1.21 (1.09-1.49)	720
	05-06	*	< LOD	.550 (<LOD-.630)	.970 (.690-1.17)	1.40 (1.08-1.59)	702
	07-08	*	< LOD	.550 (<LOD-.610)	.830 (.730-1.03)	1.30 (.930-1.48)	401
	09-10	*	< LOD	.590 (<LOD-.700)	.970 (.690-1.23)	1.23 (.920-1.66)	420
20 years and older	03-04	*	< LOD	.710 (<LOD-.770)	1.25 (1.17-1.35)	1.75 (1.59-2.00)	1488
	05-06	*	< LOD	.730 (<LOD-.780)	1.30 (1.17-1.40)	1.75 (1.57-2.06)	1490
	07-08	*	< LOD	< LOD	1.30 (1.06-1.46)	1.84 (1.52-2.33)	1814
	09-10	*	< LOD	< LOD	1.21 (1.13-1.35)	1.67 (1.52-1.94)	1914
Gender							
Males	03-04	*	< LOD	.560 (<LOD-.600)	.920 (.820-1.10)	1.30 (1.17-1.46)	1230
	05-06	*	< LOD	.600 (<LOD-.650)	1.00 (.850-1.13)	1.43 (1.25-1.59)	1270
	07-08	*	< LOD	.530 (<LOD-.600)	.930 (.830-1.06)	1.46 (1.18-1.59)	1294
	09-10	*	< LOD	< LOD	.980 (.850-1.12)	1.33 (1.13-1.59)	1399
Females	03-04	*	< LOD	.900 (<LOD-.960)	1.59 (1.35-1.75)	2.19 (1.75-2.63)	1292
	05-06	*	< LOD	.850 (<LOD-.970)	1.46 (1.30-1.67)	2.06 (1.67-2.50)	1278
	07-08	*	< LOD	< LOD	1.46 (1.23-1.75)	2.19 (1.67-2.50)	1310
	09-10	*	< LOD	.850 (<LOD-.920)	1.46 (1.30-1.59)	2.06 (1.62-2.33)	1350
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	.760 (.600-.900)	1.15 (.970-1.38)	1.59 (1.18-2.42)	616
	05-06	*	< LOD	.650 (.570-.700)	1.03 (.860-1.19)	1.46 (1.11-1.94)	637
	07-08	*	< LOD	< LOD	1.05 (.910-1.17)	1.35 (1.13-1.57)	531
	09-10	*	< LOD	.690 (<LOD-.760)	1.00 (.900-1.33)	1.67 (1.13-2.18)	566
Non-Hispanic blacks	03-04	*	< LOD	.600 (.560-.640)	.950 (.800-1.10)	1.34 (1.06-1.67)	635
	05-06	*	< LOD	.630 (.540-.740)	1.03 (.830-1.49)	1.59 (1.13-2.07)	678
	07-08	*	< LOD	.520 (.470-.620)	1.00 (.830-1.13)	1.40 (1.13-1.52)	597
	09-10	*	< LOD	.560 (.490-.610)	.830 (.750-.950)	1.17 (.920-1.52)	516
Non-Hispanic whites	03-04	*	< LOD	< LOD	1.30 (1.17-1.46)	1.75 (1.59-2.11)	1076
	05-06	*	< LOD	.760 (<LOD-.830)	1.35 (1.25-1.50)	1.79 (1.60-2.06)	1038
	07-08	*	< LOD	< LOD	1.35 (1.13-1.52)	1.84 (1.52-2.50)	1077
	09-10	*	< LOD	< LOD	1.30 (1.18-1.46)	1.73 (1.59-2.06)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Trichlorophenols_BiomonitoringSummary.html

Urinary Acephate (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2491
	05-06	*	< LOD	< LOD	< LOD	< LOD	2546
	07-08	*	< LOD	< LOD	< LOD	< LOD	2505
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	309
	05-06	*	< LOD	< LOD	< LOD	< LOD	343
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	715
	05-06	*	< LOD	< LOD	< LOD	< LOD	696
	07-08	*	< LOD	< LOD	< LOD	< LOD	375
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	939
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1134
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	528
	05-06	*	< LOD	< LOD	< LOD	< LOD	457
	07-08	*	< LOD	< LOD	< LOD	< LOD	622
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1205
	07-08	*	< LOD	< LOD	< LOD	< LOD	1250
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1270
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1255
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	608
	05-06	*	< LOD	< LOD	< LOD	< LOD	666
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	647
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	551
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1077
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1062

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.25, and 0.27 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acephate_BiomonitoringSummary.html

Urinary Acephate (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2489
	05-06	*	< LOD	< LOD	< LOD	< LOD	2546
	07-08	*	< LOD	< LOD	< LOD	< LOD	2503
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	309
	05-06	*	< LOD	< LOD	< LOD	< LOD	343
	07-08	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	714
	05-06	*	< LOD	< LOD	< LOD	< LOD	696
	07-08	*	< LOD	< LOD	< LOD	< LOD	373
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	938
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1134
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	528
	05-06	*	< LOD	< LOD	< LOD	< LOD	457
	07-08	*	< LOD	< LOD	< LOD	< LOD	622
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1205
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1269
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1254
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	607
	05-06	*	< LOD	< LOD	< LOD	< LOD	666
	07-08	*	< LOD	< LOD	< LOD	< LOD	475
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	647
	05-06	*	< LOD	< LOD	< LOD	< LOD	698
	07-08	*	< LOD	< LOD	< LOD	< LOD	550
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1076
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1062

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acephate_BiomonitoringSummary.html

Urinary Dimethoate (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2455
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	306
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	708
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	922
	05-06	*	< LOD	< LOD	< LOD	< LOD	1087
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	519
	05-06	*	< LOD	< LOD	< LOD	< LOD	474
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1197
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1258
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	605
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	629
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1068
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.25, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html

Urinary Dimethoate (creatinine corrected) (2003 – 2008)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2453
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	306
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	707
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	921
	05-06	*	< LOD	< LOD	< LOD	< LOD	1087
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	519
	05-06	*	< LOD	< LOD	< LOD	< LOD	474
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1196
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1257
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1282
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	604
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	629
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1067
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html

Urinary Methamidophos (2003 – 2008)

Also a metabolite of Acephate

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2379
	05-06	*	< LOD	< LOD	< LOD	< LOD	2591
	07-08	*	< LOD	< LOD	< LOD	< LOD	2573
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	295
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	683
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	893
	05-06	*	< LOD	< LOD	< LOD	< LOD	1070
	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	508
	05-06	*	< LOD	< LOD	< LOD	< LOD	465
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1171
	05-06	*	< LOD	< LOD	< LOD	< LOD	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1208
	05-06	*	< LOD	< LOD	< LOD	< LOD	1359
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	564
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	717
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1034
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.37, and 0.41 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Methamidophos_BiomonitoringSummary.html

Urinary Methamidophos (creatinine corrected) (2003 – 2008)

Also a metabolite of Acephate

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2377
	05-06	*	< LOD	< LOD	< LOD	< LOD	2591
	07-08	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	295
	05-06	*	< LOD	< LOD	< LOD	< LOD	346
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	682
	05-06	*	< LOD	< LOD	< LOD	< LOD	710
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	892
	05-06	*	< LOD	< LOD	< LOD	< LOD	1070
	07-08	*	< LOD	< LOD	< LOD	< LOD	1169
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	508
	05-06	*	< LOD	< LOD	< LOD	< LOD	465
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1232
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1359
	07-08	*	< LOD	< LOD	< LOD	< LOD	1282
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	563
	05-06	*	< LOD	< LOD	< LOD	< LOD	688
	07-08	*	< LOD	< LOD	< LOD	< LOD	491
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	717
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1033
	05-06	*	< LOD	< LOD	< LOD	< LOD	979
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Methamidophos_BiomonitoringSummary.html

Urinary Omethoate (2003 – 2008)

Metabolite of Dimethoate

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2455
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2574
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	303
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	707
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	923
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	522
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1207
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1248
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	606
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	493
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1055
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, and 07-08 are 0.1, 0.14, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html

Urinary Omethoate (creatinine corrected) (2003 – 2008)

Metabolite of Dimethoate

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2453
	05-06	*	< LOD	< LOD	< LOD	< LOD	2628
	07-08	*	< LOD	< LOD	< LOD	< LOD	2572
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	303
	05-06	*	< LOD	< LOD	< LOD	< LOD	349
	07-08	*	< LOD	< LOD	< LOD	< LOD	382
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	706
	05-06	*	< LOD	< LOD	< LOD	< LOD	718
	07-08	*	< LOD	< LOD	< LOD	< LOD	386
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	922
	05-06	*	< LOD	< LOD	< LOD	< LOD	1086
	07-08	*	< LOD	< LOD	< LOD	< LOD	1170
60 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	522
	05-06	*	< LOD	< LOD	< LOD	< LOD	475
	07-08	*	< LOD	< LOD	< LOD	< LOD	634
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1206
	05-06	*	< LOD	< LOD	< LOD	< LOD	1245
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1247
	05-06	*	< LOD	< LOD	< LOD	< LOD	1383
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	605
	05-06	*	< LOD	< LOD	< LOD	< LOD	693
	07-08	*	< LOD	< LOD	< LOD	< LOD	492
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	637
	05-06	*	< LOD	< LOD	< LOD	< LOD	719
	07-08	*	< LOD	< LOD	< LOD	< LOD	570
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1054
	05-06	*	< LOD	< LOD	< LOD	< LOD	1007
	07-08	*	< LOD	< LOD	< LOD	< LOD	1084

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DimethoateOmethoate_BiomonitoringSummary.html

Urinary Malathion dicarboxylic acid (1999 – 2010)

Metabolite of Malathion

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1920
	07-08	*	< LOD	< LOD	.980 (.900-1.08)	1.65 (1.44-1.94)	2581
	09-10	*	< LOD	< LOD	.990 (.830-1.09)	2.05 (1.64-2.33)	2742
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	2.80 (<LOD-5.50)	453
	07-08	*	< LOD	.510 (<LOD-.640)	1.26 (.810-2.13)	2.32 (1.43-3.55)	383
	09-10	*	< LOD	< LOD	1.10 (.580-1.59)	1.80 (1.15-3.73)	385
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	1.09 (.740-1.40)	1.59 (1.14-1.94)	390
	09-10	*	< LOD	< LOD	1.08 (.520-1.41)	1.60 (1.00-3.37)	400
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	807
	07-08	*	< LOD	< LOD	.900 (.770-1.01)	1.41 (1.14-1.65)	1177
	09-10	*	< LOD	< LOD	.910 (.710-1.10)	2.23 (1.65-2.57)	1307
60 years and older	07-08	*	< LOD	.500 (<LOD-.580)	1.37 (.980-1.73)	3.29 (1.48-7.45)	631
	09-10	*	< LOD	< LOD	1.03 (.830-1.25)	1.63 (1.34-3.34)	650
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	937
	07-08	*	< LOD	< LOD	1.05 (.930-1.23)	1.90 (1.55-2.46)	1290
	09-10	*	< LOD	< LOD	.950 (.720-1.19)	1.85 (1.22-2.86)	1341
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	983
	07-08	*	< LOD	< LOD	.860 (.660-1.13)	1.52 (1.13-1.91)	1291
	09-10	*	< LOD	< LOD	1.00 (.720-1.29)	2.19 (1.64-2.63)	1401
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	680
	07-08	*	< LOD	< LOD	.740 (.550-1.01)	1.12 (.900-1.52)	500
	09-10	*	< LOD	< LOD	.790 (.540-1.05)	1.29 (.920-1.94)	600
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	498
	07-08	*	< LOD	< LOD	.670 (.540-.810)	1.06 (.860-1.34)	573
	09-10	*	< LOD	< LOD	.630 (<LOD-.880)	1.33 (.880-1.80)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	1.08 (.900-1.29)	1.84 (1.55-2.47)	1079
	09-10	*	< LOD	< LOD	1.09 (.910-1.30)	2.33 (1.81-2.87)	1197

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 07-08, and 09-10 are 2.64, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Malathion_BiomonitoringSummary.html

Urinary Malathion dicarboxylic acid (creatinine corrected) (1999 – 2010)

Metabolite of Malathion

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1920
	07-08	*	< LOD	< LOD	1.46 (1.30-1.71)	2.19 (1.85-2.72)	2579
	09-10	*	< LOD	< LOD	1.52 (1.40-1.65)	2.50 (2.13-2.94)	2742
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	3.74 (<LOD-5.50)	453
	07-08	*	< LOD	.946 (<LOD-1.14)	1.85 (1.55-2.27)	2.84 (1.85-5.11)	383
	09-10	*	< LOD	< LOD	1.75 (1.25-2.19)	2.25 (1.94-6.25)	385
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	.982 (.761-1.21)	1.46 (1.06-1.80)	388
	09-10	*	< LOD	< LOD	.946 (.833-1.25)	1.49 (.946-3.41)	400
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	807
	07-08	*	< LOD	< LOD	1.35 (1.21-1.52)	1.96 (1.71-2.69)	1177
	09-10	*	< LOD	< LOD	1.53 (1.40-1.67)	2.56 (2.06-3.26)	1307
60 years and older	07-08	*	< LOD	1.06 (<LOD-1.17)	2.06 (1.64-2.72)	3.58 (2.19-8.63)	631
	09-10	*	< LOD	< LOD	1.62 (1.40-1.94)	2.52 (2.19-3.28)	650
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	937
	07-08	*	< LOD	< LOD	1.13 (1.00-1.31)	1.73 (1.40-2.09)	1289
	09-10	*	< LOD	< LOD	1.25 (1.06-1.52)	2.06 (1.59-2.52)	1341
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	983
	07-08	*	< LOD	< LOD	1.82 (1.46-2.06)	2.72 (2.19-3.08)	1290
	09-10	*	< LOD	< LOD	1.67 (1.46-2.06)	2.94 (2.33-3.97)	1401
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	680
	07-08	*	< LOD	< LOD	1.13 (.946-1.46)	1.84 (1.21-2.69)	499
	09-10	*	< LOD	< LOD	1.30 (1.13-1.56)	1.84 (1.52-2.10)	600
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	498
	07-08	*	< LOD	< LOD	.946 (.756-1.09)	1.35 (1.03-1.67)	572
	09-10	*	< LOD	< LOD	.875 (<LOD-1.06)	1.46 (1.09-1.75)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	1.63 (1.32-1.84)	2.47 (1.94-3.06)	1079
	09-10	*	< LOD	< LOD	1.63 (1.46-1.89)	2.99 (2.33-3.69)	1197

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Malathion_BiomonitoringSummary.html

Urinary 2-Isopropyl-4-methyl-6-hydroxypyrimidine (1999 – 2010)

Metabolite of Diazinon

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1842
	01-02	*	< LOD	< LOD	< LOD	< LOD	3044
	07-08	*	< LOD	< LOD	.350 (.260-.470)	.720 (.530-.890)	2588
	09-10	*	< LOD	< LOD	.180 (.100-.280)	.440 (.310-.660)	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	454
	01-02	*	< LOD	< LOD	< LOD	1.45 (<LOD-3.11)	580
	07-08	*	< LOD	< LOD	.260 (.160-.510)	.580 (.380-1.29)	385
	09-10	*	< LOD	< LOD	.180 (<LOD-.260)	.410 (.210-.480)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	632
	01-02	*	< LOD	< LOD	< LOD	< LOD	829
	07-08	*	< LOD	< LOD	.320 (.180-.510)	.660 (.350-1.24)	390
	09-10	*	< LOD	< LOD	< LOD	.260 (<LOD-.390)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	756
	01-02	*	< LOD	< LOD	< LOD	< LOD	1126
	07-08	*	< LOD	< LOD	.310 (.220-.500)	.670 (.490-.890)	1180
	09-10	*	< LOD	< LOD	.160 (<LOD-.280)	.450 (.280-.810)	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	.470 (.320-.670)	1.02 (.600-1.27)	633
	09-10	*	< LOD	< LOD	.290 (.200-.430)	.640 (.350-.860)	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	894
	01-02	*	< LOD	< LOD	< LOD	< LOD	1427
	07-08	*	< LOD	< LOD	.390 (.300-.500)	.760 (.530-1.02)	1293
	09-10	*	< LOD	< LOD	.160 (<LOD-.240)	.450 (.270-.710)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	948
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	.300 (.210-.450)	.670 (.510-.830)	1295
	09-10	*	< LOD	< LOD	.210 (.130-.290)	.440 (.310-.600)	1404
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	644
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	07-08	*	< LOD	.110 (<LOD-.160)	.350 (.260-.440)	.540 (.400-.790)	500
	09-10	*	< LOD	< LOD	.140 (<LOD-.210)	.360 (.210-.570)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	484
	01-02	*	< LOD	< LOD	< LOD	1.49 (<LOD-2.36)	775
	07-08	*	< LOD	.230 (.140-.300)	.680 (.460-.990)	1.26 (.880-1.77)	574
	09-10	*	< LOD	< LOD	.430 (.310-.510)	.760 (.460-1.21)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	554
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	.270 (.190-.400)	.650 (.440-.880)	1084
	09-10	*	< LOD	< LOD	.120 (<LOD-.260)	.410 (.280-.660)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 7.2, 0.7, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Diazinon_BiomonitoringSummary.html

Urinary 2-Isopropyl-4-methyl-6-hydroxypyrimidine (creatinine corrected) (1999 – 2010)

Metabolite of Diazinon

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1842
	01-02	*	< LOD	< LOD	< LOD	< LOD	3042
	07-08	*	< LOD	< LOD	.412 (.333-.508)	.731 (.538-1.00)	2586
	09-10	*	< LOD	< LOD	.313 (.269-.350)	.526 (.429-.636)	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	454
	01-02	*	< LOD	< LOD	< LOD	2.72 (<LOD-4.46)	580
	07-08	*	< LOD	< LOD	.412 (.304-.658)	1.00 (.412-1.59)	385
	09-10	*	< LOD	< LOD	.333 (<LOD-.438)	.438 (.323-.900)	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	632
	01-02	*	< LOD	< LOD	< LOD	< LOD	828
	07-08	*	< LOD	< LOD	.278 (.175-.452)	.460 (.276-1.17)	388
	09-10	*	< LOD	< LOD	< LOD	.228 (<LOD-.365)	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	756
	01-02	*	< LOD	< LOD	< LOD	< LOD	1126
	07-08	*	< LOD	< LOD	.383 (.304-.508)	.645 (.500-.846)	1180
	09-10	*	< LOD	< LOD	.304 (<LOD-.350)	.526 (.364-.700)	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	.594 (.414-.822)	1.05 (.708-1.80)	633
	09-10	*	< LOD	< LOD	.438 (.333-.551)	.773 (.550-1.09)	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	894
	01-02	*	< LOD	< LOD	< LOD	< LOD	1427
	07-08	*	< LOD	< LOD	.333 (.286-.457)	.677 (.500-.795)	1292
	09-10	*	< LOD	< LOD	.259 (<LOD-.318)	.438 (.318-.613)	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	948
	01-02	*	< LOD	< LOD	< LOD	< LOD	1615
	07-08	*	< LOD	< LOD	.438 (.368-.632)	.822 (.562-1.35)	1294
	09-10	*	< LOD	< LOD	.347 (.304-.407)	.583 (.500-.710)	1404
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	644
	01-02	*	< LOD	< LOD	< LOD	< LOD	765
	07-08	*	< LOD	.172 (<LOD-.203)	.385 (.260-.483)	.636 (.401-.990)	499
	09-10	*	< LOD	< LOD	.271 (<LOD-.333)	.412 (.350-.538)	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	484
	01-02	*	< LOD	< LOD	< LOD	1.89 (<LOD-3.06)	774
	07-08	*	< LOD	.202 (.152-.256)	.571 (.333-.800)	1.01 (.728-1.47)	573
	09-10	*	< LOD	< LOD	.318 (.269-.374)	.619 (.352-.933)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	554
	01-02	*	< LOD	< LOD	< LOD	< LOD	1279
	07-08	*	< LOD	< LOD	.368 (.292-.484)	.700 (.418-1.06)	1084
	09-10	*	< LOD	< LOD	.304 (<LOD-.368)	.525 (.412-.691)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Diazinon_BiomonitoringSummary.html

Urinary para-Nitrophenol (1999 – 2010)

Metabolite of Ethyl Parathion, Methyl Parathion, and Nitrobenzene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	2.50 (1.40-4.50)	5.00 (2.90-11.0)	1989
	01-02	*	< LOD	1.33 (1.20-1.46)	2.69 (2.39-3.01)	3.72 (3.46-4.15)	2975
	07-08	.673 (.595-.761)	.740 (.660-.830)	1.49 (1.32-1.66)	2.77 (2.19-3.45)	4.50 (3.50-5.42)	2564
	09-10	.454 (.407-.506)	.510 (.440-.580)	1.09 (1.00-1.19)	2.18 (1.99-2.34)	3.14 (2.85-3.55)	2744
Age group							
6-11 years	99-00	*	< LOD	.940 (<LOD-2.40)	2.67 (1.70-3.80)	4.30 (2.70-6.40)	479
	01-02	*	.790 (<LOD-.910)	1.49 (1.36-1.61)	2.89 (2.22-3.58)	4.10 (3.01-4.74)	565
	07-08	.803 (.678-.952)	.890 (.760-1.01)	1.66 (1.26-1.99)	2.85 (2.10-3.94)	4.37 (2.91-6.75)	383
	09-10	.506 (.426-.601)	.600 (.500-.720)	1.20 (.980-1.43)	2.21 (1.74-2.73)	2.85 (2.28-3.81)	386
12-19 years	99-00	*	< LOD	< LOD	3.40 (1.60-5.70)	5.70 (2.60-19.0)	680
	01-02	*	.730 (<LOD-.910)	1.45 (1.32-1.61)	2.66 (2.15-3.11)	3.34 (3.11-4.01)	813
	07-08	.769 (.614-.962)	.850 (.680-1.02)	1.49 (1.28-1.74)	2.79 (1.94-3.45)	3.47 (2.97-4.48)	387
	09-10	.430 (.375-.493)	.520 (.460-.590)	.950 (.870-1.09)	1.84 (1.43-2.03)	2.37 (1.84-2.98)	401
20-59 years	99-00	*	< LOD	< LOD	2.30 (1.20-5.70)	4.50 (2.30-16.0)	830
	01-02	*	< LOD	1.28 (1.09-1.47)	2.69 (2.32-3.10)	3.72 (3.37-4.24)	1099
	07-08	.658 (.574-.754)	.720 (.640-.840)	1.49 (1.31-1.65)	2.77 (2.10-3.70)	4.68 (3.37-5.56)	1173
	09-10	.452 (.400-.511)	.510 (.420-.590)	1.12 (1.00-1.24)	2.16 (1.91-2.39)	3.27 (2.84-3.58)	1308
60 years and older	01-02	*	< LOD	1.29 (1.07-1.49)	2.66 (2.11-3.39)	4.01 (3.17-7.19)	498
	07-08	.607 (.512-.720)	.610 (.550-.710)	1.41 (1.14-1.76)	2.81 (2.19-3.90)	4.70 (2.90-6.91)	621
	09-10	.453 (.386-.530)	.460 (.380-.580)	1.06 (.970-1.33)	2.42 (1.87-3.00)	3.65 (3.00-4.36)	649
Gender							
Males	99-00	*	< LOD	< LOD	2.50 (1.40-4.50)	4.50 (2.50-14.0)	971
	01-02	*	.760 (.450-.880)	1.49 (1.32-1.63)	3.01 (2.66-3.33)	4.13 (3.61-4.92)	1395
	07-08	.782 (.690-.887)	.850 (.740-.980)	1.59 (1.43-1.73)	2.85 (2.19-3.53)	4.52 (3.47-5.01)	1282
	09-10	.524 (.472-.581)	.590 (.490-.670)	1.30 (1.14-1.42)	2.29 (2.07-2.54)	3.29 (2.90-3.73)	1342
Females	99-00	*	< LOD	< LOD	2.50 (1.30-5.70)	5.70 (2.90-9.50)	1018
	01-02	*	< LOD	1.18 (1.01-1.37)	2.29 (1.95-2.69)	3.52 (3.16-3.77)	1580
	07-08	.582 (.510-.664)	.640 (.550-.720)	1.32 (1.10-1.59)	2.72 (2.16-3.35)	4.37 (3.09-5.64)	1282
	09-10	.396 (.352-.446)	.440 (.380-.510)	.960 (.860-1.06)	2.01 (1.70-2.26)	3.07 (2.62-3.55)	1402
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	1.70 (<LOD-3.50)	5.80 (2.60-24.0)	22.0 (3.60-36.0)	695
	01-02	*	.680 (<LOD-.840)	1.33 (1.08-1.58)	2.61 (1.91-3.41)	3.64 (2.70-5.73)	744
	07-08	.624 (.542-.720)	.700 (.560-.810)	1.37 (1.16-1.52)	2.58 (2.03-3.33)	4.46 (2.79-6.91)	494
	09-10	.484 (.392-.599)	.560 (.440-.710)	1.30 (1.03-1.46)	2.21 (1.78-2.46)	3.07 (2.39-3.73)	602
Non-Hispanic blacks	99-00	*	< LOD	1.20 (<LOD-2.60)	2.90 (1.70-6.00)	4.80 (2.50-9.20)	518
	01-02	*	.850 (<LOD-1.10)	1.76 (1.36-2.15)	3.13 (2.47-4.26)	4.92 (3.75-6.36)	752
	07-08	.826 (.716-.952)	.860 (.760-1.01)	1.71 (1.45-1.92)	3.15 (2.56-3.90)	4.72 (3.91-5.68)	568
	09-10	.505 (.381-.670)	.570 (.400-.820)	1.30 (1.01-1.50)	2.19 (1.80-2.63)	3.49 (2.57-4.28)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	2.10 (<LOD-6.33)	4.20 (2.10-11.0)	603
	01-02	*	< LOD	1.29 (1.14-1.42)	2.70 (2.38-3.10)	3.71 (3.38-4.00)	1259
	07-08	.623 (.531-.730)	.690 (.610-.790)	1.36 (1.19-1.59)	2.51 (1.89-3.08)	3.63 (2.82-5.48)	1075
	09-10	.440 (.388-.499)	.490 (.410-.580)	1.03 (.930-1.12)	2.18 (1.89-2.48)	3.14 (2.67-3.62)	1197

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.8, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html

Urinary para-Nitrophenol (creatinine corrected) (1999 – 2010)

Metabolite of Ethyl Parathion, Methyl Parathion, and Nitrobenzene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	2.08 (1.33-3.91)	4.25 (2.15-10.2)	1989
	01-02	*	< LOD	.987 (.868-1.10)	1.97 (1.86-2.13)	2.98 (2.60-3.33)	2973
	07-08	.692 (.632-.757)	.673 (.624-.737)	1.28 (1.15-1.40)	2.38 (2.11-2.66)	3.57 (2.94-4.39)	2562
	09-10	.473 (.430-.521)	.490 (.438-.531)	.923 (.851-1.01)	1.87 (1.60-2.06)	2.62 (2.32-2.91)	2744
Age group							
6-11 years	99-00	*	< LOD	.938 (<LOD-1.95)	2.80 (1.94-4.00)	4.20 (3.33-6.70)	479
	01-02	*	.715 (<LOD-.870)	1.60 (1.30-1.82)	2.78 (2.31-3.11)	3.67 (3.11-4.61)	565
	07-08	1.02 (.892-1.17)	1.02 (.920-1.12)	1.67 (1.46-1.90)	3.13 (2.51-3.64)	3.76 (3.31-4.89)	383
	09-10	.684 (.598-.784)	.717 (.650-.826)	1.30 (1.10-1.54)	2.19 (2.00-2.59)	3.16 (2.33-3.67)	386
12-19 years	99-00	*	< LOD	< LOD	1.80 (1.08-3.04)	4.00 (1.57-7.29)	680
	01-02	*	.373 (<LOD-.503)	.840 (.790-.951)	1.59 (1.37-1.78)	2.10 (1.78-2.43)	812
	07-08	.597 (.511-.698)	.581 (.497-.697)	1.02 (.891-1.14)	1.64 (1.29-2.17)	2.92 (1.55-4.54)	385
	09-10	.368 (.319-.426)	.413 (.350-.488)	.684 (.615-.732)	1.09 (.930-1.48)	1.73 (1.47-2.09)	401
20-59 years	99-00	*	< LOD	< LOD	2.00 (1.17-4.25)	4.29 (2.13-12.3)	830
	01-02	*	< LOD	.875 (.693-1.07)	1.79 (1.56-2.05)	2.89 (2.35-3.33)	1099
	07-08	.656 (.595-.724)	.635 (.585-.706)	1.22 (1.09-1.34)	2.19 (1.94-2.51)	3.04 (2.56-4.07)	1173
	09-10	.452 (.410-.498)	.453 (.405-.521)	.868 (.805-.981)	1.61 (1.48-1.87)	2.34 (2.08-2.67)	1308
60 years and older	01-02	*	< LOD	1.21 (.920-1.56)	2.29 (1.99-2.83)	4.29 (2.51-5.67)	497
	07-08	.755 (.643-.886)	.763 (.638-.909)	1.59 (1.40-1.73)	3.26 (2.46-4.47)	5.43 (3.33-7.09)	621
	09-10	.537 (.450-.641)	.520 (.451-.636)	1.15 (.899-1.59)	2.53 (2.03-3.39)	4.27 (2.98-5.26)	649
Gender							
Males	99-00	*	< LOD	< LOD	1.90 (1.01-3.39)	3.39 (1.77-7.55)	971
	01-02	*	.433 (.333-.534)	.984 (.869-1.07)	1.89 (1.66-2.09)	2.98 (2.29-3.57)	1395
	07-08	.650 (.595-.712)	.641 (.594-.697)	1.20 (1.08-1.33)	2.11 (1.63-2.49)	3.02 (2.51-3.71)	1281
	09-10	.466 (.424-.512)	.495 (.432-.538)	.922 (.843-.985)	1.84 (1.48-2.05)	2.36 (2.21-2.68)	1342
Females	99-00	*	< LOD	< LOD	2.26 (1.48-4.88)	6.92 (2.76-14.1)	1018
	01-02	*	< LOD	.995 (.801-1.23)	2.08 (1.85-2.32)	3.04 (2.58-3.44)	1578
	07-08	.735 (.660-.818)	.707 (.644-.779)	1.37 (1.21-1.63)	2.67 (2.20-3.25)	4.11 (3.11-5.06)	1281
	09-10	.480 (.430-.536)	.488 (.426-.538)	.923 (.824-1.08)	1.93 (1.62-2.17)	2.72 (2.32-3.46)	1402
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	1.55 (<LOD-3.17)	4.86 (2.21-21.9)	17.4 (3.94-47.7)	695
	01-02	*	.389 (<LOD-.546)	.935 (.716-1.22)	1.89 (1.43-2.63)	3.23 (2.49-3.84)	744
	07-08	.638 (.538-.757)	.604 (.554-.708)	1.14 (.938-1.40)	2.03 (1.45-3.57)	3.63 (2.05-4.71)	493
	09-10	.506 (.419-.612)	.541 (.480-.621)	1.02 (.854-1.19)	1.73 (1.39-2.15)	2.35 (1.84-3.02)	602
Non-Hispanic blacks	99-00	*	< LOD	.683 (<LOD-1.79)	2.07 (1.33-3.71)	3.71 (1.98-7.20)	518
	01-02	*	.438 (<LOD-.640)	1.04 (.847-1.27)	1.84 (1.59-2.30)	2.81 (2.14-4.30)	751
	07-08	.633 (.565-.708)	.634 (.553-.743)	1.07 (.973-1.23)	2.04 (1.64-2.32)	2.66 (2.11-3.54)	567
	09-10	.382 (.289-.505)	.431 (.312-.554)	.785 (.671-.874)	1.36 (1.03-1.99)	2.52 (1.73-3.22)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	1.97 (<LOD-4.29)	3.83 (1.97-10.2)	603
	01-02	*	< LOD	.984 (.827-1.16)	2.06 (1.89-2.29)	3.11 (2.49-3.57)	1258
	07-08	.677 (.604-.759)	.664 (.604-.761)	1.25 (1.10-1.38)	2.28 (2.00-2.56)	3.23 (2.60-4.00)	1075
	09-10	.479 (.433-.530)	.490 (.433-.538)	.923 (.849-1.03)	1.92 (1.60-2.13)	2.62 (2.24-3.04)	1197

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html

Urinary 3,5,6-Trichloro-2-pyridinol (1999 – 2010)

Metabolite of Chlorpyrifos and Chlorpyrifos-methyl

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.77 (1.46-2.14)	1.70 (1.40-2.20)	3.50 (2.50-5.20)	7.30 (4.80-10.0)	10.0 (7.70-15.0)	1994
	01-02	1.72 (1.50-1.97)	2.17 (1.81-2.51)	4.87 (4.45-5.24)	8.80 (7.80-9.77)	12.4 (10.7-15.2)	3011
	07-08	1.29 (1.20-1.39)	1.48 (1.31-1.65)	2.63 (2.39-2.94)	4.55 (4.03-5.14)	6.11 (5.60-6.93)	2588
	09-10	.779 (.706-.859)	1.03 (.920-1.16)	1.96 (1.80-2.20)	3.34 (2.96-3.68)	4.47 (4.04-5.15)	2747
Age group							
6-11 years	99-00	2.88 (1.99-4.16)	2.80 (1.60-4.90)	7.09 (3.40-10.0)	12.0 (7.70-17.0)	16.0 (10.0-28.0)	481
	01-02	2.67 (2.13-3.35)	3.09 (2.50-4.22)	6.36 (4.97-7.97)	10.9 (7.98-15.3)	15.3 (11.5-24.0)	573
	07-08	1.72 (1.48-2.01)	1.85 (1.49-2.22)	3.18 (2.58-3.68)	4.69 (3.90-5.74)	6.04 (5.12-7.63)	385
	09-10	1.12 (.899-1.39)	1.46 (1.27-1.64)	2.38 (1.96-2.75)	4.29 (2.67-6.07)	5.81 (4.14-7.16)	386
12-19 years	99-00	2.37 (1.89-2.97)	2.10 (1.60-3.00)	4.50 (2.90-7.10)	8.10 (5.50-14.0)	12.5 (8.00-24.0)	681
	01-02	2.71 (2.19-3.35)	3.57 (2.66-4.34)	6.60 (5.61-7.59)	11.3 (8.66-15.1)	18.0 (13.7-23.7)	823
	07-08	1.54 (1.27-1.86)	1.81 (1.39-2.20)	2.75 (2.34-3.29)	4.70 (3.66-5.72)	6.33 (4.98-7.96)	390
	09-10	.884 (.793-.985)	1.08 (.960-1.30)	1.89 (1.64-2.28)	3.04 (2.28-4.21)	4.30 (3.14-5.60)	401
20-59 years	99-00	1.53 (1.29-1.83)	1.50 (1.30-1.80)	2.90 (2.20-4.30)	5.90 (3.90-8.90)	8.90 (6.70-11.0)	832
	01-02	1.51 (1.32-1.72)	1.91 (1.44-2.26)	4.44 (3.90-4.80)	7.78 (7.00-8.91)	10.9 (9.52-12.4)	1113
	07-08	1.19 (1.07-1.33)	1.36 (1.22-1.53)	2.55 (2.21-2.98)	4.46 (3.82-5.30)	5.85 (5.40-6.93)	1180
	09-10	.710 (.634-.795)	.970 (.860-1.12)	1.89 (1.70-2.07)	3.14 (2.81-3.49)	4.18 (3.66-4.73)	1309
60 years and older	01-02	1.51 (1.21-1.89)	1.76 (1.22-2.33)	4.36 (3.54-5.08)	9.11 (6.67-13.0)	13.5 (11.2-15.5)	502
	07-08	1.31 (1.17-1.47)	1.51 (1.27-1.70)	2.51 (2.34-2.78)	4.64 (3.97-5.81)	6.69 (5.14-8.14)	633
	09-10	.812 (.710-.929)	.990 (.870-1.15)	2.30 (1.73-2.58)	3.90 (3.16-4.67)	5.32 (4.23-6.85)	651
Gender							
Males	99-00	1.92 (1.60-2.32)	1.90 (1.50-2.40)	3.60 (2.70-5.60)	7.40 (5.04-10.0)	10.0 (7.70-16.0)	972
	01-02	2.13 (1.82-2.49)	2.67 (2.24-3.16)	5.33 (4.81-6.05)	9.69 (8.45-11.5)	15.0 (11.7-17.7)	1416
	07-08	1.49 (1.36-1.64)	1.70 (1.49-1.92)	2.85 (2.50-3.17)	4.87 (4.17-5.52)	6.01 (5.56-6.67)	1293
	09-10	.865 (.775-.965)	1.16 (1.03-1.27)	2.10 (1.87-2.35)	3.50 (2.97-3.93)	4.66 (3.96-5.84)	1343
Females	99-00	1.63 (1.31-2.02)	1.50 (1.20-2.00)	3.30 (2.30-5.30)	7.20 (4.30-12.0)	11.0 (7.20-16.0)	1022
	01-02	1.40 (1.21-1.62)	1.63 (1.32-2.01)	4.31 (3.57-4.84)	7.78 (6.52-9.20)	10.9 (8.62-13.2)	1595
	07-08	1.13 (1.04-1.22)	1.26 (1.13-1.40)	2.41 (2.15-2.79)	4.32 (3.76-4.98)	6.30 (5.27-7.59)	1295
	09-10	.704 (.631-.786)	.940 (.830-1.04)	1.88 (1.63-2.11)	3.22 (2.78-3.72)	4.40 (4.09-4.73)	1404
Race/ethnicity							
Mexican Americans	99-00	1.61 (1.31-2.00)	1.67 (1.30-2.20)	3.20 (2.60-3.80)	5.10 (3.80-8.40)	7.40 (5.10-17.0)	697
	01-02	1.98 (1.77-2.21)	2.54 (2.21-2.89)	4.55 (4.09-5.22)	8.94 (7.06-10.4)	11.9 (10.0-15.7)	744
	07-08	1.13 (.926-1.38)	1.26 (1.06-1.53)	2.34 (1.89-2.94)	4.04 (3.13-4.92)	5.36 (4.37-7.16)	500
	09-10	.761 (.650-.892)	.950 (.850-1.18)	1.90 (1.66-2.11)	3.31 (2.76-4.19)	4.64 (4.19-5.46)	602
Non-Hispanic blacks	99-00	2.17 (1.59-2.97)	1.90 (1.43-2.80)	4.30 (2.50-8.30)	9.40 (6.40-13.7)	13.0 (9.40-26.0)	521
	01-02	2.14 (1.61-2.84)	2.85 (2.16-3.38)	5.45 (4.57-6.96)	9.27 (7.21-11.7)	12.9 (9.57-17.5)	776
	07-08	1.64 (1.36-1.97)	1.86 (1.47-2.24)	3.22 (2.65-4.17)	5.79 (4.85-7.17)	7.97 (6.49-9.58)	574
	09-10	.918 (.823-1.02)	1.22 (1.06-1.38)	2.24 (2.00-2.52)	3.49 (2.99-4.14)	4.99 (3.93-6.17)	504
Non-Hispanic whites	99-00	1.76 (1.51-2.05)	1.70 (1.50-2.10)	3.50 (2.50-4.86)	7.10 (4.30-11.0)	10.0 (7.20-14.0)	602
	01-02	1.67 (1.44-1.94)	2.11 (1.64-2.47)	4.85 (4.38-5.29)	8.91 (7.63-9.97)	12.9 (10.4-15.7)	1267
	07-08	1.23 (1.16-1.30)	1.44 (1.27-1.58)	2.57 (2.35-2.83)	4.41 (3.89-4.87)	5.69 (5.40-6.14)	1084
	09-10	.768 (.667-.885)	1.03 (.890-1.18)	1.96 (1.71-2.31)	3.42 (2.93-3.86)	4.46 (3.93-5.32)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorpyrifos_BiomonitoringSummary.html

Urinary 3,5,6-Trichloro-2-pyridinol (creatinine corrected) (1999 – 2010)

Metabolite of Chlorpyrifos and Chlorpyrifos-methyl

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.58 (1.35-1.85)	1.47 (1.24-1.74)	2.85 (2.12-3.59)	5.43 (4.22-6.68)	8.42 (6.25-11.6)	1994
	01-02	1.75 (1.53-2.00)	1.94 (1.66-2.25)	3.80 (3.13-4.48)	6.53 (5.24-8.23)	9.27 (7.46-12.1)	3009
	07-08	1.33 (1.22-1.44)	1.34 (1.25-1.48)	2.29 (2.06-2.48)	3.80 (3.44-4.15)	4.91 (4.47-5.83)	2586
	09-10	.812 (.748-.881)	.979 (.917-1.05)	1.66 (1.52-1.80)	2.67 (2.40-2.94)	3.53 (3.15-4.02)	2747
Age group							
6-11 years	99-00	3.11 (2.31-4.19)	3.20 (2.05-4.80)	6.39 (4.14-8.19)	10.1 (7.26-14.0)	14.1 (10.1-21.0)	481
	01-02	3.48 (2.80-4.32)	3.76 (3.17-4.36)	6.22 (4.88-8.57)	12.2 (7.24-24.4)	16.9 (12.1-38.0)	573
	07-08	2.18 (1.89-2.53)	2.21 (1.86-2.66)	3.23 (2.86-3.89)	4.67 (4.23-5.00)	5.94 (4.76-6.58)	385
	09-10	1.51 (1.28-1.78)	1.77 (1.49-1.95)	2.62 (2.26-2.90)	3.67 (2.93-4.42)	4.42 (3.76-5.95)	386
12-19 years	99-00	1.60 (1.34-1.91)	1.45 (1.21-1.81)	2.58 (1.98-3.92)	4.83 (3.44-6.16)	6.16 (4.43-10.6)	681
	01-02	2.09 (1.72-2.55)	2.24 (1.92-2.66)	3.97 (3.30-4.72)	6.33 (5.62-7.89)	10.3 (7.65-15.2)	822
	07-08	1.19 (1.05-1.34)	1.20 (1.05-1.33)	1.85 (1.61-2.22)	2.66 (2.32-3.62)	4.00 (2.70-5.77)	388
	09-10	.757 (.675-.850)	.861 (.766-.935)	1.34 (1.15-1.55)	2.27 (1.55-2.68)	2.67 (2.13-4.21)	401
20-59 years	99-00	1.41 (1.23-1.62)	1.33 (1.12-1.58)	2.37 (1.87-3.01)	4.29 (3.53-5.56)	6.42 (5.11-9.02)	832
	01-02	1.49 (1.30-1.71)	1.64 (1.39-1.88)	3.11 (2.60-3.91)	5.51 (4.33-7.23)	7.44 (5.80-11.0)	1113
	07-08	1.19 (1.09-1.30)	1.22 (1.10-1.33)	2.04 (1.78-2.32)	3.42 (2.93-3.96)	4.84 (3.96-6.31)	1180
	09-10	.710 (.644-.784)	.875 (.813-.943)	1.47 (1.35-1.62)	2.27 (1.99-2.66)	3.20 (2.75-3.64)	1309
60 years and older	01-02	1.84 (1.55-2.18)	2.15 (1.71-2.60)	4.08 (3.61-4.84)	7.43 (6.50-8.50)	11.2 (7.95-13.5)	501
	07-08	1.61 (1.43-1.81)	1.68 (1.48-1.92)	2.88 (2.38-3.46)	4.46 (3.87-4.91)	5.59 (4.64-7.03)	633
	09-10	.963 (.838-1.11)	1.18 (1.01-1.34)	2.03 (1.87-2.19)	3.14 (2.73-4.02)	4.36 (3.47-5.36)	651
Gender							
Males	99-00	1.48 (1.27-1.72)	1.44 (1.19-1.68)	2.54 (2.05-3.38)	4.95 (3.84-6.54)	7.63 (5.65-11.0)	972
	01-02	1.75 (1.51-2.02)	1.93 (1.66-2.24)	3.61 (3.01-4.22)	6.33 (5.08-8.88)	11.3 (7.54-13.5)	1416
	07-08	1.24 (1.13-1.35)	1.29 (1.15-1.46)	2.12 (1.87-2.34)	3.44 (3.03-3.78)	4.41 (3.82-4.97)	1292
	09-10	.769 (.712-.831)	.930 (.863-.988)	1.55 (1.39-1.70)	2.54 (2.18-2.80)	3.41 (3.01-3.93)	1343
Females	99-00	1.69 (1.42-2.01)	1.51 (1.25-1.85)	2.97 (2.25-4.02)	5.63 (4.27-7.39)	8.44 (5.79-13.3)	1022
	01-02	1.75 (1.52-2.02)	1.96 (1.61-2.30)	3.96 (3.16-4.78)	6.58 (5.37-7.95)	8.98 (7.07-11.8)	1593
	07-08	1.42 (1.30-1.55)	1.40 (1.29-1.53)	2.43 (2.22-2.70)	4.18 (3.73-4.74)	5.77 (4.76-7.03)	1294
	09-10	.855 (.765-.954)	1.04 (.951-1.14)	1.76 (1.60-1.96)	2.79 (2.40-3.18)	3.68 (3.18-4.10)	1404
Race/ethnicity							
Mexican Americans	99-00	1.46 (1.20-1.77)	1.44 (1.05-1.93)	2.39 (2.09-2.96)	3.86 (3.24-5.09)	5.85 (3.88-9.57)	697
	01-02	1.86 (1.64-2.10)	2.06 (1.85-2.30)	3.79 (3.23-4.46)	6.52 (5.73-7.58)	8.71 (7.68-11.0)	744
	07-08	1.15 (.895-1.46)	1.18 (.941-1.50)	1.97 (1.55-2.38)	3.04 (2.31-4.41)	4.41 (2.92-7.11)	499
	09-10	.796 (.680-.930)	.959 (.821-1.07)	1.58 (1.39-1.76)	2.61 (2.25-2.99)	3.46 (3.16-4.01)	602
Non-Hispanic blacks	99-00	1.47 (1.09-1.99)	1.33 (.936-1.94)	2.86 (1.58-5.05)	5.91 (4.05-8.93)	9.02 (5.91-13.7)	521
	01-02	1.58 (1.19-2.08)	1.95 (1.56-2.48)	3.53 (2.84-4.28)	5.60 (4.68-6.40)	7.21 (5.83-9.11)	775
	07-08	1.25 (1.05-1.49)	1.24 (1.03-1.47)	2.25 (1.86-2.86)	3.91 (3.13-4.68)	5.39 (4.12-8.30)	573
	09-10	.694 (.613-.786)	.813 (.698-.981)	1.41 (1.28-1.62)	2.28 (2.00-2.55)	2.93 (2.55-3.50)	504
Non-Hispanic whites	99-00	1.66 (1.45-1.91)	1.55 (1.31-1.83)	2.93 (2.09-3.97)	5.56 (4.21-6.75)	8.44 (6.25-12.3)	602
	01-02	1.81 (1.55-2.11)	2.00 (1.65-2.35)	3.91 (3.03-4.91)	6.94 (5.24-9.22)	10.6 (7.76-12.6)	1266
	07-08	1.33 (1.22-1.45)	1.37 (1.26-1.53)	2.31 (2.02-2.54)	3.76 (3.40-4.03)	4.73 (4.35-5.68)	1084
	09-10	.837 (.750-.934)	1.01 (.919-1.12)	1.73 (1.55-1.93)	2.75 (2.40-3.14)	3.64 (3.10-4.36)	1200

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorpyrifos_BiomonitoringSummary.html

Urinary Diethylphosphate (DEP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.03 (.670-1.58)	1.20 (.750-1.70)	3.20 (2.30-4.80)	7.60 (5.00-12.0)	13.0 (7.70-23.0)	1949
	01-02	*	< LOD	2.90 (2.50-3.26)	6.68 (5.78-7.52)	10.6 (9.14-12.0)	3018
	03-04	*	< LOD	4.56 (3.57-5.83)	10.2 (9.00-11.5)	15.5 (13.5-16.8)	2453
	05-06	*	< LOD	1.46 (.780-2.17)	7.01 (5.67-8.94)	13.3 (10.2-16.0)	2635
	07-08	*	< LOD	2.48 (1.44-3.33)	8.74 (7.51-10.3)	15.3 (13.1-17.8)	2591
Age group							
6-11 years	99-00	1.32 (.757-2.29)	1.50 (.860-2.60)	4.50 (2.10-7.90)	11.0 (4.80-24.0)	16.0 (8.50-36.0)	471
	01-02	*	.290 (<LOD-1.04)	3.45 (2.36-4.47)	9.56 (6.33-18.0)	20.0 (9.44-38.2)	576
	03-04	*	< LOD	5.13 (2.48-7.94)	10.9 (8.08-15.9)	16.1 (10.9-18.5)	308
	05-06	*	< LOD	1.45 (<LOD-4.51)	8.21 (4.85-13.4)	13.5 (8.36-20.4)	350
	07-08	*	< LOD	4.31 (.420-6.49)	12.9 (9.14-17.7)	20.2 (11.9-37.5)	385
12-19 years	99-00	1.21 (.758-1.94)	1.40 (.970-2.10)	3.70 (2.40-5.50)	8.00 (4.70-19.0)	20.0 (8.00-27.0)	664
	01-02	*	< LOD	2.86 (1.96-3.95)	7.58 (5.71-9.15)	11.0 (9.35-12.4)	822
	03-04	*	.530 (<LOD-2.32)	5.80 (4.34-7.67)	14.8 (9.12-19.8)	20.8 (14.8-32.7)	701
	05-06	*	< LOD	.460 (<LOD-3.69)	9.47 (4.67-14.1)	14.4 (10.2-22.4)	718
	07-08	*	< LOD	3.81 (<LOD-5.42)	10.7 (7.76-14.2)	23.3 (11.3-35.6)	391
20-59 years	99-00	.955 (.623-1.47)	1.10 (.700-1.60)	3.00 (1.80-4.80)	7.30 (4.70-11.0)	11.0 (6.80-22.0)	814
	01-02	*	< LOD	2.71 (2.34-3.12)	5.79 (5.05-7.21)	10.4 (7.43-12.3)	1122
	03-04	*	< LOD	4.37 (3.02-5.81)	9.74 (8.35-11.3)	14.2 (11.5-16.2)	922
	05-06	*	< LOD	1.13 (<LOD-2.17)	6.15 (4.51-8.24)	11.5 (8.23-15.5)	1092
	07-08	*	< LOD	1.55 (.470-2.48)	7.54 (6.10-8.98)	14.0 (9.62-15.7)	1178
60 years and older	01-02	*	.440 (<LOD-1.63)	3.30 (2.63-4.51)	7.06 (5.17-8.69)	9.41 (8.31-10.6)	498
	03-04	*	1.80 (<LOD-2.98)	4.73 (3.98-5.91)	10.0 (8.09-11.3)	13.6 (10.6-16.7)	522
	05-06	*	< LOD	2.69 (1.71-3.95)	8.33 (6.60-12.0)	16.3 (12.0-18.7)	475
	07-08	*	< LOD	3.55 (2.80-5.31)	9.86 (7.53-14.2)	17.1 (12.6-22.1)	637
Gender							
Males	99-00	1.11 (.717-1.73)	1.20 (.810-1.70)	3.80 (2.50-5.00)	8.00 (5.00-19.0)	19.0 (7.20-30.0)	952
	01-02	*	< LOD	3.21 (2.72-3.56)	6.99 (5.83-7.71)	11.5 (9.36-12.1)	1420
	03-04	*	< LOD	5.01 (3.90-6.50)	11.0 (10.1-12.7)	16.2 (14.3-18.8)	1198
	05-06	*	< LOD	.770 (<LOD-1.71)	6.82 (5.14-9.54)	13.4 (9.36-16.1)	1246
	07-08	*	< LOD	1.95 (<LOD-3.34)	9.39 (7.90-11.8)	17.0 (13.7-21.5)	1295
Females	99-00	.954 (.599-1.52)	1.20 (.620-1.70)	2.90 (1.90-4.80)	7.50 (4.60-11.0)	11.0 (7.40-16.0)	997
	01-02	*	.290 (<LOD-.790)	2.63 (2.22-3.03)	6.21 (4.59-8.64)	10.2 (7.52-14.7)	1598
	03-04	*	.110 (<LOD-2.29)	4.29 (3.21-5.80)	9.38 (7.95-10.7)	13.3 (11.2-15.9)	1255
	05-06	*	< LOD	2.15 (1.27-2.76)	7.23 (5.79-9.32)	12.9 (9.64-16.0)	1389
	07-08	*	< LOD	2.76 (1.69-3.62)	7.76 (6.23-10.7)	14.5 (10.7-18.8)	1296

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.2, 0.2, 0.1, 0.37, and 0.37 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethylphosphate (DEP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.22 (.740-2.01)	1.20 (.840-1.80)	4.10 (2.20-7.00)	11.0 (6.40-19.0)	18.0 (12.0-27.0)	672
	01-02	*	.600 (<LOD-1.49)	3.07 (2.22-3.83)	6.26 (5.00-7.82)	11.2 (7.82-12.3)	763
	03-04	*	1.18 (<LOD-2.97)	5.81 (3.99-7.59)	11.0 (8.48-16.1)	16.9 (12.1-24.0)	581
	05-06	*	< LOD	< LOD	6.30 (1.57-11.6)	14.9 (5.72-33.5)	695
	07-08	*	< LOD	1.63 (<LOD-3.88)	8.36 (6.44-9.61)	14.8 (8.85-25.1)	501
Non-Hispanic blacks	99-00	1.56 (1.13-2.14)	1.60 (1.40-1.80)	4.30 (2.90-5.80)	10.0 (5.60-18.0)	18.0 (8.00-27.0)	509
	01-02	*	1.03 (<LOD-2.33)	4.81 (3.48-6.52)	9.98 (7.39-13.3)	15.1 (9.81-23.4)	756
	03-04	*	1.04 (<LOD-3.28)	6.29 (5.05-8.44)	11.9 (9.92-15.5)	16.2 (14.1-22.5)	628
	05-06	*	< LOD	2.10 (<LOD-4.57)	8.87 (6.52-12.0)	14.3 (11.2-19.1)	723
	07-08	*	< LOD	3.92 (2.67-5.19)	11.3 (9.44-14.0)	19.5 (14.1-22.0)	574
Non-Hispanic whites	99-00	.981 (.579-1.66)	1.10 (.490-2.10)	3.30 (2.20-4.90)	7.70 (4.70-14.0)	14.0 (7.60-25.0)	595
	01-02	*	< LOD	2.63 (2.21-3.13)	5.79 (5.05-7.35)	9.90 (8.38-11.7)	1253
	03-04	*	< LOD	4.25 (3.12-5.77)	9.74 (8.37-11.3)	14.4 (12.4-16.0)	1055
	05-06	*	< LOD	1.50 (.900-2.27)	6.82 (5.08-9.74)	13.3 (8.37-16.9)	1007
	07-08	*	< LOD	2.14 (1.27-3.03)	7.57 (6.57-8.97)	14.5 (11.4-16.5)	1086

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.2, 0.2, 0.1, 0.37, and 0.37 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethylphosphate (DEP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.924 (.608-1.41)	.920 (.570-1.40)	2.73 (1.68-4.60)	7.94 (4.40-12.2)	12.2 (8.00-19.6)	1949
	01-02	*	< LOD	2.56 (2.17-2.85)	5.36 (4.75-6.06)	8.72 (7.19-10.3)	3017
	03-04	*	< LOD	4.64 (3.82-5.79)	9.18 (7.85-10.8)	13.1 (10.5-16.1)	2450
	05-06	*	< LOD	2.23 (1.49-3.09)	7.72 (6.26-9.36)	13.5 (11.0-19.0)	2634
	07-08	*	< LOD	3.20 (2.37-4.12)	8.86 (7.52-10.7)	15.7 (11.9-19.8)	2589
Age group							
6-11 years	99-00	1.43 (.870-2.34)	1.47 (1.02-2.41)	3.94 (2.20-8.57)	10.5 (4.55-20.8)	16.6 (10.5-32.7)	471
	01-02	*	.886 (<LOD-1.76)	4.02 (2.87-5.25)	8.85 (6.88-15.6)	18.4 (9.40-28.8)	576
	03-04	*	< LOD	6.10 (3.79-9.03)	11.9 (9.54-15.2)	16.1 (11.9-28.3)	308
	05-06	*	< LOD	3.09 (<LOD-6.77)	9.50 (5.67-17.6)	20.7 (9.50-26.5)	350
	07-08	*	< LOD	4.67 (2.01-6.96)	17.2 (13.1-20.3)	28.2 (19.3-34.8)	385
12-19 years	99-00	.818 (.533-1.26)	.790 (.560-1.25)	2.35 (1.37-3.75)	5.44 (2.82-14.4)	12.4 (4.66-34.2)	664
	01-02	*	< LOD	2.05 (1.54-2.67)	4.40 (3.40-5.28)	7.28 (5.28-9.75)	821
	03-04	*	.438 (<LOD-2.05)	4.47 (3.90-5.43)	10.1 (7.10-13.5)	14.7 (9.82-26.4)	699
	05-06	*	< LOD	1.27 (<LOD-2.81)	6.74 (4.24-9.87)	11.7 (6.98-16.6)	718
	07-08	*	< LOD	2.86 (<LOD-4.53)	8.56 (5.70-17.0)	17.0 (8.05-23.0)	389
20-59 years	99-00	.883 (.574-1.36)	.860 (.500-1.35)	2.66 (1.54-4.95)	7.37 (4.32-12.1)	12.1 (8.00-17.5)	814
	01-02	*	< LOD	2.28 (2.01-2.56)	4.75 (3.92-5.83)	7.37 (5.93-9.72)	1122
	03-04	*	< LOD	4.29 (2.98-5.71)	8.35 (6.09-11.3)	11.9 (9.02-14.7)	921
	05-06	*	< LOD	1.92 (<LOD-2.95)	6.64 (5.22-9.25)	12.3 (9.25-19.4)	1091
	07-08	*	< LOD	2.38 (1.81-3.27)	7.45 (6.11-9.43)	11.4 (9.22-15.8)	1178
60+ years	01-02	*	1.00 (<LOD-1.88)	3.29 (2.74-4.14)	6.52 (4.92-8.21)	9.82 (7.05-14.4)	498
	03-04	*	2.39 (<LOD-3.35)	5.65 (4.36-7.50)	9.44 (8.38-10.5)	13.3 (10.5-18.2)	522
	05-06	*	< LOD	3.75 (2.30-5.14)	9.88 (7.72-12.6)	19.3 (12.6-26.6)	475
	07-08	*	< LOD	5.28 (4.03-6.23)	11.8 (9.36-14.4)	17.7 (13.2-21.9)	637
Gender							
Males	99-00	.855 (.566-1.29)	.820 (.510-1.34)	2.61 (1.76-4.03)	7.69 (4.41-12.1)	12.2 (6.94-23.8)	952
	01-02	*	< LOD	2.20 (1.86-2.64)	4.49 (3.92-5.31)	7.50 (5.79-9.10)	1420
	03-04	*	< LOD	4.20 (3.28-5.30)	8.35 (7.10-10.1)	12.0 (9.33-14.7)	1197
	05-06	*	< LOD	1.16 (<LOD-2.25)	6.24 (4.58-7.63)	10.0 (7.60-17.8)	1246
	07-08	*	< LOD	2.17 (<LOD-3.23)	8.14 (6.35-10.7)	13.6 (9.79-18.6)	1294
Females	99-00	.996 (.620-1.60)	.960 (.540-1.62)	2.81 (1.45-5.85)	8.00 (4.00-13.0)	12.1 (6.67-19.6)	997
	01-02	*	.778 (<LOD-1.31)	2.81 (2.44-3.33)	6.49 (4.95-7.76)	9.61 (7.12-13.6)	1597
	03-04	*	.636 (<LOD-2.84)	5.06 (4.03-6.86)	9.85 (8.25-11.8)	13.8 (10.9-20.3)	1253
	05-06	*	< LOD	3.50 (2.43-4.11)	9.36 (6.91-11.8)	16.5 (12.4-22.3)	1388
	07-08	*	< LOD	4.09 (2.80-4.91)	9.46 (8.43-11.5)	16.5 (13.1-20.9)	1295

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethylphosphate (DEP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.09 (.633-1.89)	1.05 (.650-1.98)	3.78 (2.11-6.46)	9.84 (5.66-15.7)	15.7 (8.61-29.0)	672
	01-02	*	.891 (<LOD-1.41)	2.39 (1.77-3.14)	5.17 (4.10-6.53)	8.04 (6.40-10.9)	763
	03-04	*	1.07 (<LOD-2.79)	4.94 (3.30-7.01)	9.94 (7.89-13.3)	16.6 (10.1-22.4)	580
	05-06	*	< LOD	< LOD	6.26 (3.71-10.1)	14.9 (5.75-37.3)	695
	07-08	*	< LOD	3.19 (<LOD-4.27)	8.56 (6.00-10.3)	13.3 (9.77-15.9)	500
Non-Hispanic blacks	99-00	1.07 (.773-1.47)	1.18 (.830-1.54)	2.61 (1.89-3.47)	5.98 (3.94-9.56)	11.9 (5.98-22.2)	509
	01-02	*	.797 (<LOD-1.62)	2.98 (2.57-3.61)	6.91 (5.17-8.69)	9.58 (7.82-12.1)	755
	03-04	*	.741 (<LOD-2.21)	4.25 (3.46-5.36)	8.30 (6.57-10.7)	11.7 (10.5-13.2)	627
	05-06	*	< LOD	1.92 (<LOD-3.58)	7.08 (5.16-9.35)	11.4 (8.91-12.3)	722
	07-08	*	< LOD	3.33 (2.33-4.15)	8.72 (7.27-10.2)	16.7 (11.5-19.4)	573
Non-Hispanic whites	99-00	.932 (.549-1.58)	.900 (.430-1.68)	2.87 (1.51-5.88)	8.57 (4.40-14.4)	13.0 (8.21-23.8)	595
	01-02	*	< LOD	2.52 (2.08-2.95)	5.26 (4.57-5.93)	8.26 (6.61-10.8)	1253
	03-04	*	< LOD	4.65 (3.73-5.87)	9.12 (7.79-11.2)	12.7 (10.1-15.7)	1054
	05-06	*	< LOD	2.50 (1.74-3.30)	7.72 (6.24-9.25)	13.9 (10.0-19.5)	1007
	07-08	*	< LOD	3.10 (2.19-4.18)	8.44 (6.84-9.74)	13.6 (10.9-17.5)	1086

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylphosphate (DMP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.740 (<LOD-1.40)	2.90 (2.10-4.00)	7.90 (6.20-8.90)	14.0 (10.0-19.0)	1949
	01-02	*	< LOD	3.32 (2.90-3.74)	8.40 (7.11-9.23)	13.4 (11.4-14.9)	3017
	03-04	*	< LOD	4.15 (3.39-4.94)	9.54 (7.46-11.9)	15.1 (12.8-18.2)	2494
	05-06	*	< LOD	5.21 (4.15-6.56)	17.2 (13.8-20.5)	29.6 (24.3-35.2)	2635
	07-08	*	< LOD	7.91 (6.64-9.07)	20.8 (18.2-24.4)	35.6 (30.3-39.4)	2593
Age group							
6-11 years	99-00	1.58 (1.15-2.18)	1.10 (.580-2.20)	4.40 (2.80-6.80)	10.0 (7.80-21.0)	22.0 (15.0-33.0)	471
	01-02	*	.970 (<LOD-2.00)	5.04 (3.31-7.66)	12.2 (9.10-15.1)	18.3 (12.6-41.7)	576
	03-04	*	< LOD	4.53 (3.34-5.96)	11.0 (5.62-17.9)	16.2 (7.46-28.3)	310
	05-06	*	< LOD	9.92 (3.24-20.0)	27.1 (16.5-46.6)	46.6 (27.1-63.0)	350
	07-08	*	< LOD	12.5 (7.22-16.4)	29.7 (20.3-39.1)	43.3 (29.7-62.7)	385
12-19 years	99-00	*	.670 (<LOD-1.80)	3.80 (2.50-4.90)	9.90 (6.20-18.0)	22.0 (13.0-29.0)	664
	01-02	*	.670 (<LOD-1.31)	4.27 (3.41-5.35)	9.27 (7.80-12.3)	14.7 (11.8-21.3)	822
	03-04	*	1.20 (<LOD-2.27)	4.61 (3.47-6.72)	10.9 (7.90-15.0)	20.9 (12.5-26.8)	717
	05-06	*	< LOD	7.32 (1.35-12.4)	22.6 (16.1-36.1)	44.0 (27.6-54.0)	718
	07-08	*	< LOD	10.0 (7.22-14.5)	25.5 (16.8-35.6)	36.2 (25.5-49.6)	391
20-59 years	99-00	*	.680 (<LOD-1.30)	2.70 (1.80-3.70)	6.60 (5.70-8.10)	9.70 (8.80-14.0)	814
	01-02	*	< LOD	2.95 (2.35-3.41)	6.95 (5.80-8.82)	11.5 (9.66-13.7)	1121
	03-04	*	< LOD	3.75 (2.84-4.88)	8.52 (6.86-10.7)	14.1 (10.8-17.5)	938
	05-06	*	< LOD	4.09 (2.45-6.03)	13.8 (9.82-19.8)	24.6 (19.8-32.8)	1092
	07-08	*	< LOD	6.07 (4.26-7.69)	18.0 (13.6-22.6)	30.3 (23.2-37.9)	1180
60 years and older	01-02	*	.700 (<LOD-1.50)	3.68 (2.91-4.56)	8.93 (6.79-10.7)	14.4 (9.60-19.1)	498
	03-04	*	2.04 (<LOD-2.63)	4.60 (3.83-5.15)	11.3 (7.68-13.4)	16.3 (12.4-19.4)	529
	05-06	*	< LOD	6.75 (4.75-9.32)	16.8 (11.7-22.1)	26.3 (18.9-38.8)	475
	07-08	*	< LOD	10.8 (8.64-13.0)	24.9 (19.2-32.4)	40.5 (32.5-47.4)	637
Gender							
Males	99-00	*	.670 (<LOD-1.30)	2.90 (2.20-4.00)	7.90 (6.00-9.30)	18.0 (10.0-24.0)	952
	01-02	*	< LOD	3.49 (2.90-4.15)	8.40 (6.95-10.3)	12.8 (11.3-14.7)	1420
	03-04	*	< LOD	4.03 (3.30-4.91)	8.49 (6.82-11.9)	15.1 (11.3-20.0)	1221
	05-06	*	< LOD	4.10 (2.37-6.40)	15.9 (12.4-20.9)	28.1 (22.3-36.7)	1246
	07-08	*	< LOD	7.75 (6.50-9.63)	20.8 (17.6-26.6)	36.1 (27.0-47.4)	1295
Females	99-00	*	.790 (<LOD-1.60)	2.90 (2.00-4.20)	7.80 (5.70-9.00)	11.0 (9.00-18.0)	997
	01-02	*	< LOD	3.06 (2.63-3.63)	8.38 (6.56-9.63)	13.7 (10.9-17.6)	1597
	03-04	*	1.08 (<LOD-1.92)	4.29 (3.31-5.28)	10.4 (7.64-12.9)	14.8 (13.3-18.0)	1273
	05-06	*	< LOD	6.40 (5.04-7.21)	18.7 (14.6-20.8)	30.9 (24.6-41.1)	1389
	07-08	*	< LOD	7.91 (6.18-9.36)	20.6 (16.5-25.5)	34.2 (26.6-41.5)	1298

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.58, 0.5, 0.5, 0.47, and 0.47 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

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Urinary Dimethylphosphate (DMP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	1.10 (<LOD-1.80)	3.80 (2.70-5.30)	9.60 (6.00-16.0)	16.0 (8.90-31.0)	672
	01-02	*	.710 (<LOD-1.52)	3.34 (2.45-4.42)	9.13 (7.29-10.7)	14.4 (11.0-20.6)	763
	03-04	*	< LOD	4.37 (3.12-6.86)	10.3 (7.85-17.4)	22.3 (9.61-31.6)	610
	05-06	*	< LOD	2.65 (<LOD-6.47)	18.9 (13.3-27.9)	39.0 (30.0-47.2)	695
	07-08	*	< LOD	6.85 (3.69-8.82)	20.9 (14.1-26.4)	35.6 (26.3-49.4)	501
Non-Hispanic blacks	99-00	1.42 (1.16-1.74)	1.00 (.650-1.50)	3.60 (2.50-5.50)	8.90 (6.90-15.0)	21.0 (14.0-24.0)	509
	01-02	*	.890 (<LOD-2.20)	4.71 (3.68-6.62)	10.7 (8.54-13.9)	19.4 (14.7-22.8)	755
	03-04	*	< LOD	5.28 (4.18-6.37)	10.8 (8.33-12.5)	15.8 (12.2-23.4)	631
	05-06	*	< LOD	9.16 (2.74-15.1)	22.7 (18.2-33.7)	42.5 (27.3-61.9)	723
	07-08	*	< LOD	8.67 (6.43-11.1)	23.7 (18.3-28.6)	38.0 (27.7-48.1)	574
Non-Hispanic whites	99-00	*	< LOD	2.90 (1.80-4.20)	7.90 (5.90-9.00)	11.0 (9.00-18.0)	595
	01-02	*	< LOD	3.13 (2.49-3.58)	7.79 (6.67-9.22)	12.5 (10.3-14.7)	1253
	03-04	*	< LOD	3.95 (3.23-4.91)	8.83 (6.56-12.5)	14.8 (11.9-20.0)	1061
	05-06	*	< LOD	5.04 (3.60-6.75)	15.3 (11.8-20.5)	27.8 (20.8-36.7)	1007
	07-08	*	< LOD	7.46 (6.27-9.03)	20.7 (17.5-25.5)	35.6 (28.7-39.1)	1088

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.58, 0.5, 0.5, 0.47, and 0.47 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylphosphate (DMP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.810 (<LOD-1.15)	2.93 (2.11-3.92)	8.50 (6.96-10.4)	16.1 (13.3-17.6)	1949
	01-02	*	< LOD	3.16 (2.69-3.59)	8.00 (7.12-9.28)	12.9 (11.5-15.0)	3016
	03-04	*	< LOD	4.05 (3.50-5.15)	9.96 (8.78-11.2)	15.0 (13.0-18.1)	2491
	05-06	*	< LOD	5.97 (4.75-7.43)	18.0 (15.9-20.5)	27.9 (24.0-32.7)	2634
	07-08	*	< LOD	9.10 (8.08-10.2)	20.0 (18.0-24.2)	33.6 (28.8-40.2)	2591
Age group							
6-11 years	99-00	1.71 (1.29-2.27)	1.38 (.890-2.38)	4.48 (2.88-7.89)	16.7 (8.21-21.2)	22.1 (19.2-30.1)	471
	01-02	*	1.93 (<LOD-2.97)	5.99 (4.32-8.28)	12.9 (9.34-18.5)	20.6 (13.3-34.8)	576
	03-04	*	< LOD	6.87 (3.80-9.00)	13.9 (9.68-19.3)	19.6 (13.9-25.9)	310
	05-06	*	< LOD	12.4 (6.71-21.9)	41.2 (23.4-62.2)	71.5 (37.9-107)	350
	07-08	*	< LOD	15.6 (10.8-21.6)	35.3 (27.6-39.2)	54.3 (36.5-67.1)	385
12-19 years	99-00	*	.590 (<LOD-.950)	2.28 (1.70-2.80)	7.78 (4.16-14.4)	16.0 (8.70-35.3)	664
	01-02	*	.913 (<LOD-1.27)	3.29 (2.76-3.78)	6.29 (5.51-7.30)	9.83 (7.94-14.2)	821
	03-04	*	1.00 (<LOD-1.68)	4.16 (3.37-5.07)	8.81 (7.78-10.2)	12.7 (10.3-17.7)	715
	05-06	*	< LOD	5.89 (2.00-10.1)	18.1 (13.9-24.0)	28.9 (19.9-37.9)	718
	07-08	*	< LOD	9.10 (5.62-10.9)	19.9 (15.5-22.5)	26.1 (19.8-27.2)	389
20-59 years	99-00	*	.760 (<LOD-1.12)	2.88 (1.89-3.99)	8.11 (5.89-10.3)	14.6 (10.4-16.8)	814
	01-02	*	< LOD	2.55 (2.05-3.03)	6.92 (5.85-8.00)	11.5 (9.38-13.6)	1121
	03-04	*	< LOD	3.77 (2.72-4.55)	8.78 (6.68-10.5)	13.5 (11.2-15.6)	937
	05-06	*	< LOD	4.71 (3.22-6.50)	16.3 (13.3-18.7)	24.0 (19.9-27.6)	1091
	07-08	*	< LOD	7.32 (6.02-8.62)	17.2 (13.0-20.0)	28.2 (19.3-40.7)	1180
60+ years	01-02	*	1.46 (<LOD-2.00)	4.31 (3.44-5.39)	10.6 (7.92-12.0)	14.3 (11.8-18.5)	498
	03-04	*	2.19 (<LOD-2.69)	5.88 (4.65-7.51)	12.3 (9.79-14.8)	17.4 (13.0-24.2)	529
	05-06	*	< LOD	9.16 (6.36-11.1)	19.7 (13.7-26.4)	30.5 (22.0-46.2)	475
	07-08	*	< LOD	12.9 (10.5-15.3)	29.9 (20.9-38.5)	45.5 (30.5-80.3)	637
Gender							
Males	99-00	*	.620 (<LOD-.940)	2.38 (1.86-3.18)	7.58 (4.64-11.6)	15.2 (9.74-19.5)	952
	01-02	*	< LOD	2.77 (2.32-3.19)	7.06 (5.44-8.80)	11.2 (9.70-12.7)	1420
	03-04	*	< LOD	3.27 (2.55-3.94)	8.58 (6.79-10.4)	12.5 (10.5-15.4)	1220
	05-06	*	< LOD	4.15 (2.16-5.95)	14.7 (11.1-18.0)	21.9 (18.9-26.9)	1246
	07-08	*	< LOD	7.08 (5.54-8.54)	17.5 (15.1-20.4)	28.0 (21.2-35.4)	1294
Females	99-00	*	1.00 (<LOD-1.71)	3.63 (2.30-5.19)	9.12 (7.82-11.7)	16.4 (11.7-19.7)	997
	01-02	*	< LOD	3.50 (2.86-4.49)	9.09 (7.83-10.8)	15.0 (12.5-17.8)	1596
	03-04	*	1.67 (<LOD-2.25)	5.28 (4.05-6.49)	11.2 (9.65-13.8)	18.1 (14.8-20.6)	1271
	05-06	*	< LOD	8.22 (6.99-9.20)	22.0 (17.7-24.9)	37.9 (27.0-47.2)	1388
	07-08	*	< LOD	10.7 (9.10-12.4)	24.3 (19.5-28.2)	38.6 (27.2-54.6)	1297

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylphosphate (DMP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	1.06 (<LOD-1.55)	3.89 (2.54-5.45)	9.41 (7.69-11.5)	16.7 (11.7-23.6)	672
	01-02	*	.947 (<LOD-1.35)	3.18 (2.54-3.80)	8.44 (6.24-10.9)	14.3 (11.4-16.2)	763
	03-04	*	< LOD	4.16 (2.57-6.30)	12.3 (7.50-16.5)	18.8 (15.3-21.5)	609
	05-06	*	< LOD	4.27 (<LOD-8.50)	19.1 (14.9-22.7)	29.9 (23.8-39.0)	695
	07-08	*	< LOD	7.47 (5.57-9.46)	19.9 (16.8-24.7)	29.8 (24.7-33.4)	500
Non-Hispanic blacks	99-00	.973 (.780-1.21)	.690 (.530-1.06)	2.67 (1.89-3.77)	7.07 (5.09-11.4)	14.0 (10.6-19.1)	509
	01-02	*	.851 (<LOD-1.34)	3.36 (2.68-4.22)	7.63 (6.35-9.18)	13.2 (10.1-14.9)	754
	03-04	*	< LOD	3.70 (2.84-4.48)	7.52 (6.59-8.89)	12.7 (8.89-19.3)	630
	05-06	*	< LOD	5.89 (2.56-8.89)	18.7 (13.1-26.4)	29.9 (24.0-38.7)	722
	07-08	*	< LOD	6.75 (4.80-8.65)	20.1 (15.5-25.1)	30.7 (24.2-37.7)	573
Non-Hispanic whites	99-00	*	< LOD	3.15 (1.97-4.32)	8.73 (5.89-13.3)	15.8 (10.0-21.2)	595
	01-02	*	< LOD	3.12 (2.50-3.76)	8.30 (6.91-10.0)	13.6 (11.2-16.9)	1253
	03-04	*	< LOD	4.05 (3.49-5.64)	10.2 (8.83-11.8)	14.8 (12.1-19.2)	1060
	05-06	*	< LOD	5.97 (4.53-8.08)	17.7 (15.2-20.6)	26.3 (23.3-29.3)	1007
	07-08	*	< LOD	9.33 (7.92-10.8)	20.0 (17.5-24.2)	35.1 (27.2-43.9)	1088

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethylthiophosphate (DETP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.500 (<LOD-.690)	.760 (.620-1.10)	1.40 (1.10-1.80)	2.20 (1.70-2.80)	1949
	01-02	.484 (.381-.615)	.630 (.450-.930)	1.53 (1.33-1.80)	2.57 (2.28-3.01)	3.94 (3.26-4.94)	3016
	03-04	*	< LOD	.830 (.710-.960)	1.83 (1.51-2.30)	3.00 (2.39-3.78)	2422
	05-06	*	< LOD	.620 (<LOD-.710)	1.43 (1.17-1.84)	2.55 (1.94-3.37)	2634
	07-08	*	< LOD	1.00 (.880-1.16)	2.18 (1.75-2.75)	4.35 (2.95-6.01)	2590
Age group 6-11 years	99-00	*	.600 (<LOD-.810)	.910 (.720-1.30)	1.70 (1.20-3.20)	3.20 (1.70-7.30)	471
	01-02	.453 (.350-.585)	.550 (.350-.850)	1.58 (1.33-2.04)	2.75 (2.22-3.38)	4.08 (2.95-5.16)	575
	03-04	*	< LOD	.820 (.580-.970)	1.45 (1.05-2.16)	2.18 (1.45-4.13)	296
	05-06	*	< LOD	.700 (<LOD-.950)	1.38 (1.03-2.05)	2.15 (1.37-4.06)	350
	07-08	*	< LOD	1.18 (.990-1.42)	2.93 (2.06-5.58)	6.44 (2.87-13.2)	385
12-19 years	99-00	*	.210 (<LOD-.710)	.780 (.600-1.20)	1.50 (1.20-2.30)	2.30 (1.60-4.30)	664
	01-02	.505 (.388-.657)	.690 (.440-.960)	1.61 (1.32-1.94)	2.57 (2.23-3.39)	4.08 (2.73-5.86)	822
	03-04	*	.260 (<LOD-.400)	.930 (.750-1.13)	2.14 (1.75-2.89)	3.27 (2.69-4.83)	690
	05-06	*	< LOD	.700 (<LOD-.920)	1.42 (1.07-1.94)	2.46 (1.47-4.42)	717
	07-08	*	< LOD	1.04 (.880-1.45)	2.20 (1.58-3.11)	4.02 (2.16-7.07)	390
20-59 years	99-00	*	.490 (<LOD-.670)	.740 (.600-.930)	1.30 (.990-1.80)	2.00 (1.50-2.60)	814
	01-02	.449 (.340-.592)	.540 (.380-.880)	1.45 (1.19-1.79)	2.46 (2.11-3.17)	3.83 (2.96-5.34)	1122
	03-04	*	< LOD	.800 (.650-.960)	1.76 (1.37-2.32)	2.65 (2.31-3.89)	919
	05-06	*	< LOD	.600 (<LOD-.680)	1.42 (1.12-1.77)	2.45 (1.82-3.31)	1092
	07-08	*	< LOD	.930 (.780-1.22)	2.16 (1.68-2.76)	4.20 (2.76-5.92)	1179
60 years and older	01-02	.662 (.571-.768)	1.00 (.740-1.14)	1.77 (1.50-2.10)	2.81 (2.44-3.46)	4.45 (2.93-8.31)	497
	03-04	*	.310 (<LOD-.520)	.890 (.740-1.05)	1.99 (1.52-2.67)	3.72 (2.19-6.81)	517
	05-06	*	< LOD	.660 (<LOD-.840)	1.62 (1.25-2.31)	3.20 (2.04-4.18)	475
	07-08	*	< LOD	.980 (.860-1.16)	2.04 (1.60-3.01)	4.25 (2.76-5.40)	636
Gender Males	99-00	*	.510 (<LOD-.700)	.790 (.680-1.10)	1.50 (1.20-2.20)	2.70 (1.90-4.10)	952
	01-02	.495 (.393-.623)	.660 (.470-.900)	1.53 (1.37-1.82)	2.68 (2.28-3.34)	3.96 (3.07-5.85)	1419
	03-04	*	.250 (<LOD-.380)	.890 (.780-1.04)	2.20 (1.65-2.41)	3.15 (2.42-4.29)	1174
	05-06	*	< LOD	.590 (<LOD-.720)	1.48 (1.15-1.97)	2.61 (1.89-3.58)	1246
	07-08	*	< LOD	1.03 (.890-1.25)	2.49 (1.82-3.29)	4.79 (3.44-5.92)	1293
Females	99-00	*	< LOD	.720 (.570-1.00)	1.30 (.910-1.60)	1.70 (1.30-3.20)	997
	01-02	.474 (.360-.624)	.620 (.410-.960)	1.51 (1.22-1.86)	2.49 (2.15-3.04)	3.94 (2.82-5.27)	1597
	03-04	*	< LOD	.770 (.600-.930)	1.59 (1.24-2.08)	2.67 (2.07-3.81)	1248
	05-06	*	< LOD	.630 (.580-.710)	1.43 (1.14-1.77)	2.42 (1.78-3.52)	1388
	07-08	*	< LOD	.960 (.840-1.14)	2.00 (1.60-2.50)	4.01 (2.41-6.59)	1297

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.09, 0.1, 0.2, 0.56, and 0.56 respectively.

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Urinary Diethylthiophosphate (DETP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

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Race/ethnicity							
Mexican Americans	99-00	*	.570 (<LOD-.780)	.840 (.740-.980)	1.50 (1.20-1.90)	2.20 (2.00-2.90)	672
	01-02	.549 (.403-.749)	.710 (.470-.960)	1.40 (1.04-1.97)	2.63 (2.06-3.14)	3.98 (2.75-5.21)	763
	03-04	*	.250 (<LOD-.380)	.970 (.720-1.52)	2.35 (1.69-3.83)	4.19 (2.38-8.80)	584
	05-06	*	< LOD	.700 (<LOD-.900)	1.42 (.980-2.48)	2.72 (1.42-4.48)	695
	07-08	*	< LOD	.970 (.830-1.15)	1.98 (1.60-2.65)	3.46 (2.78-4.46)	500
Non-Hispanic blacks	99-00	.343 (.201-.584)	.570 (<LOD-.750)	.820 (.690-1.20)	1.80 (1.30-3.20)	3.60 (2.00-4.80)	509
	01-02	.755 (.589-.966)	1.17 (.740-1.46)	1.85 (1.73-1.99)	3.54 (2.95-3.87)	5.27 (3.89-6.74)	755
	03-04	.466 (.384-.564)	.430 (.210-.710)	1.08 (.930-1.29)	2.32 (1.74-2.70)	3.25 (2.55-4.83)	605
	05-06	*	< LOD	.850 (.640-1.18)	1.74 (1.43-2.27)	2.96 (2.09-4.20)	722
	07-08	*	< LOD	1.23 (.890-1.40)	2.85 (2.05-4.12)	4.81 (4.00-6.59)	574
Non-Hispanic whites	99-00	*	.160 (<LOD-.700)	.740 (.580-1.10)	1.30 (.960-1.90)	1.90 (1.50-2.80)	595
	01-02	.464 (.344-.626)	.600 (.410-.950)	1.53 (1.27-1.83)	2.46 (2.15-3.17)	3.75 (2.82-5.54)	1252
	03-04	*	< LOD	.750 (.610-.890)	1.75 (1.33-2.20)	2.68 (2.20-3.78)	1044
	05-06	*	< LOD	.600 (<LOD-.690)	1.42 (1.04-1.99)	2.56 (1.82-3.70)	1007
	07-08	*	< LOD	.910 (.820-1.04)	1.80 (1.56-2.46)	3.52 (2.20-5.61)	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.09, 0.1, 0.2, 0.56, and 0.56 respectively.

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Biomonitoring Summary

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Urinary Diethylthiophosphate (DETP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.250 (<LOD-.480)	.710 (.460-1.07)	1.72 (1.17-2.32)	2.64 (2.08-3.06)	1949
	01-02	.496 (.388-.636)	.569 (.403-.789)	1.42 (1.16-1.79)	3.11 (2.58-3.82)	4.88 (3.78-6.65)	3015
	03-04	*	< LOD	.740 (.667-.839)	1.59 (1.32-2.05)	2.87 (2.22-3.77)	2420
	05-06	*	< LOD	.956 (<LOD-1.09)	1.88 (1.67-2.21)	2.89 (2.35-3.37)	2633
	07-08	*	< LOD	1.24 (1.15-1.37)	2.46 (1.98-3.11)	3.92 (3.05-5.12)	2588
Age group 6-11 years	99-00	*	.470 (<LOD-.870)	1.08 (.800-1.32)	1.75 (1.44-2.36)	2.45 (2.04-5.32)	471
	01-02	.591 (.471-.742)	.636 (.397-1.05)	1.63 (1.31-1.94)	3.22 (2.72-4.16)	5.70 (3.84-6.80)	575
	03-04	*	< LOD	.869 (.592-1.09)	1.57 (1.08-2.67)	2.67 (1.57-4.05)	296
	05-06	*	< LOD	1.23 (<LOD-1.33)	1.95 (1.60-2.86)	3.97 (1.95-5.88)	350
	07-08	*	< LOD	1.89 (1.32-2.09)	3.74 (2.46-5.55)	6.54 (3.49-16.0)	385
12-19 years	99-00	*	.180 (<LOD-.400)	.510 (.320-.820)	1.07 (.720-1.61)	1.97 (1.07-3.92)	664
	01-02	.393 (.300-.515)	.534 (.313-.735)	1.23 (.978-1.53)	2.19 (1.61-3.07)	3.14 (2.25-3.97)	821
	03-04	*	.300 (<LOD-.354)	.645 (.559-.734)	1.49 (1.16-1.60)	1.97 (1.57-2.43)	689
	05-06	*	< LOD	.710 (<LOD-.889)	1.35 (1.00-2.03)	2.21 (1.35-3.33)	717
	07-08	*	< LOD	.902 (.692-1.15)	1.78 (1.15-3.32)	3.32 (1.68-5.48)	388
20-59 years	99-00	*	.250 (<LOD-.460)	.680 (.440-1.08)	1.79 (1.08-2.39)	2.75 (2.02-3.22)	814
	01-02	.447 (.335-.597)	.494 (.316-.742)	1.32 (.986-1.71)	2.87 (2.08-3.95)	4.69 (3.20-7.81)	1122
	03-04	*	< LOD	.700 (.550-.875)	1.47 (1.11-2.23)	2.82 (2.02-3.81)	918
	05-06	*	< LOD	.913 (<LOD-1.13)	1.84 (1.65-2.11)	2.86 (2.25-3.33)	1091
	07-08	*	< LOD	1.24 (1.09-1.40)	2.27 (1.79-3.07)	3.51 (2.59-4.78)	1179
60+ years	01-02	.821 (.708-.952)	.971 (.849-1.10)	2.25 (1.81-2.66)	3.97 (3.33-5.06)	5.51 (4.79-8.07)	497
	03-04	*	.491 (<LOD-.560)	.933 (.814-1.17)	2.14 (1.46-3.00)	3.92 (2.28-8.15)	517
	05-06	*	< LOD	1.11 (<LOD-1.38)	2.50 (1.67-3.11)	3.80 (2.86-8.71)	475
	07-08	*	< LOD	1.32 (1.20-1.58)	2.91 (2.25-3.38)	4.49 (3.05-9.80)	636
Gender Males	99-00	*	.270 (<LOD-.470)	.670 (.520-.840)	1.34 (1.08-2.17)	2.67 (1.67-3.23)	952
	01-02	.410 (.319-.526)	.517 (.342-.721)	1.22 (1.02-1.41)	2.46 (1.71-3.18)	3.67 (2.70-4.71)	1419
	03-04	*	.276 (<LOD-.326)	.667 (.560-.804)	1.49 (1.15-1.91)	2.87 (1.74-3.72)	1173
	05-06	*	< LOD	.773 (<LOD-.907)	1.42 (1.21-2.00)	2.35 (1.90-3.27)	1246
	07-08	*	< LOD	1.02 (.943-1.09)	1.94 (1.60-2.39)	3.22 (2.50-4.42)	1292
Females	99-00	*	< LOD	.790 (.380-1.50)	1.89 (1.07-2.52)	2.52 (1.89-3.75)	997
	01-02	.597 (.457-.779)	.647 (.423-.961)	1.77 (1.34-2.50)	3.82 (2.93-5.14)	6.57 (4.34-9.28)	1596
	03-04	*	< LOD	.821 (.700-.946)	1.76 (1.34-2.29)	3.02 (2.25-4.33)	1247
	05-06	*	< LOD	1.17 (1.03-1.38)	2.21 (1.83-2.50)	3.18 (2.50-4.47)	1387
	07-08	*	< LOD	1.47 (1.28-1.72)	2.86 (2.29-3.51)	4.48 (3.30-5.73)	1296

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethylthiophosphate (DETP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	.330 (<LOD-.790)	.830 (.550-1.20)	1.69 (1.20-2.43)	2.71 (1.75-3.78)	672
	01-02	.520 (.390-.693)	.570 (.416-.824)	1.30 (1.05-1.74)	2.58 (1.82-3.72)	3.82 (2.77-6.43)	763
	03-04	*	.329 (<LOD-.414)	.824 (.555-1.22)	2.03 (1.26-3.63)	3.74 (2.47-6.18)	584
	05-06	*	< LOD	.907 (<LOD-1.10)	1.74 (1.35-2.07)	2.86 (2.02-4.00)	695
	07-08	*	< LOD	1.20 (.989-1.32)	2.20 (1.83-2.86)	3.32 (2.59-5.11)	499
Non-Hispanic blacks	99-00	.234 (.136-.403)	.310 (<LOD-.580)	.720 (.510-.850)	1.39 (1.03-2.10)	2.91 (1.49-4.24)	509
	01-02	.556 (.457-.676)	.726 (.565-.938)	1.50 (1.34-1.70)	2.80 (2.35-3.30)	4.00 (3.29-4.99)	754
	03-04	.321 (.270-.381)	.313 (.231-.407)	.699 (.561-.831)	1.45 (1.09-1.75)	2.64 (1.71-3.64)	604
	05-06	*	< LOD	.720 (.606-.824)	1.48 (1.24-1.73)	2.45 (1.76-3.19)	721
	07-08	*	< LOD	1.07 (.880-1.21)	2.40 (1.85-2.89)	4.12 (3.19-5.67)	573
Non-Hispanic whites	99-00	*	.230 (<LOD-.550)	.710 (.390-1.22)	1.88 (1.05-2.58)	2.64 (2.08-3.07)	595
	01-02	.506 (.373-.687)	.579 (.368-.850)	1.51 (1.18-2.00)	3.38 (2.64-4.35)	5.83 (3.95-7.81)	1252
	03-04	*	< LOD	.735 (.636-.848)	1.52 (1.20-2.07)	2.69 (2.07-3.97)	1043
	05-06	*	< LOD	1.00 (<LOD-1.21)	2.00 (1.73-2.27)	3.08 (2.50-3.74)	1007
	07-08	*	< LOD	1.24 (1.07-1.39)	2.28 (1.71-3.30)	3.49 (2.56-4.60)	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylthiophosphate (DMTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf.)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.82 (1.36-2.44)	2.70 (1.40-4.10)	11.0 (8.40-16.0)	38.0 (25.0-41.0)	48.0 (38.0-62.0)	1948
	01-02	*	.580 (<LOD-1.45)	4.23 (3.10-5.88)	17.5 (13.0-22.7)	32.9 (27.2-45.3)	3016
	03-04	2.25 (1.98-2.56)	2.03 (1.73-2.37)	6.36 (5.11-7.34)	19.6 (16.2-21.5)	35.3 (27.4-45.3)	2494
	05-06	1.96 (1.74-2.20)	1.71 (1.43-1.94)	5.34 (4.49-6.08)	14.2 (10.5-20.8)	28.2 (22.1-36.0)	2631
	07-08	2.28 (1.97-2.64)	2.10 (1.77-2.44)	5.90 (4.94-7.01)	18.3 (13.5-23.0)	36.8 (27.8-45.7)	2591
Age group 6-11 years	99-00	2.72 (1.93-3.85)	4.20 (2.50-7.20)	20.0 (13.0-29.0)	40.0 (38.0-52.0)	62.0 (40.0-92.0)	471
	01-02	*	1.46 (.600-2.69)	8.33 (5.75-14.0)	28.4 (19.7-41.4)	45.7 (28.5-74.5)	575
	03-04	2.79 (2.25-3.45)	2.67 (1.81-3.88)	6.95 (5.64-8.58)	19.4 (10.5-27.4)	30.9 (19.4-76.5)	310
	05-06	2.70 (2.25-3.26)	2.38 (1.76-3.33)	8.21 (4.96-11.8)	21.4 (12.7-40.7)	40.7 (18.3-90.4)	349
	07-08	3.43 (2.88-4.09)	3.50 (2.69-4.10)	9.90 (7.14-13.9)	32.0 (19.1-45.7)	52.5 (36.7-67.4)	385
12-19 years	99-00	2.53 (1.64-3.92)	3.70 (1.70-6.80)	16.0 (11.0-31.0)	38.0 (33.0-58.0)	69.0 (38.0-260)	664
	01-02	*	1.04 (<LOD-2.12)	4.83 (3.35-6.48)	20.8 (12.2-27.9)	34.9 (23.6-54.7)	822
	03-04	2.21 (1.81-2.70)	1.83 (1.46-2.16)	5.91 (4.04-8.78)	18.7 (12.2-33.9)	47.1 (22.2-80.8)	717
	05-06	2.51 (2.00-3.16)	2.53 (1.90-3.02)	6.44 (4.91-8.77)	21.7 (13.1-28.2)	38.5 (25.3-79.2)	717
	07-08	2.10 (1.68-2.61)	1.82 (1.53-2.31)	5.18 (3.55-7.48)	13.6 (8.16-27.9)	31.5 (12.4-54.5)	391
20-59 years	99-00	1.59 (1.17-2.16)	2.30 (.830-3.80)	9.10 (7.10-13.0)	38.0 (19.0-39.0)	39.0 (38.0-58.0)	813
	01-02	*	< LOD	3.32 (2.29-4.96)	13.6 (9.50-20.0)	30.0 (20.5-45.3)	1121
	03-04	1.98 (1.71-2.30)	1.78 (1.48-2.18)	5.11 (4.31-6.53)	16.7 (12.1-20.8)	28.5 (24.1-40.0)	938
	05-06	1.72 (1.50-1.97)	1.37 (1.20-1.73)	4.25 (3.68-5.22)	12.4 (8.37-19.6)	26.6 (16.4-37.9)	1092
	07-08	2.03 (1.68-2.46)	1.90 (1.46-2.39)	5.18 (4.24-6.09)	13.3 (10.4-19.2)	30.6 (21.4-44.6)	1179
60 years and older	01-02	*	.860 (<LOD-2.16)	5.85 (3.33-9.56)	19.6 (13.0-27.9)	32.9 (22.7-51.0)	498
	03-04	3.18 (2.47-4.08)	2.64 (2.16-3.81)	9.63 (6.32-15.5)	25.0 (15.5-45.3)	45.3 (20.9-119)	529
	05-06	2.18 (1.81-2.63)	2.03 (1.46-2.68)	6.38 (4.62-8.23)	14.0 (9.72-20.9)	25.2 (18.2-37.6)	473
	07-08	2.91 (2.37-3.58)	2.57 (1.99-3.18)	9.19 (5.54-13.0)	26.2 (19.4-32.5)	42.7 (30.5-54.1)	636
Gender Males	99-00	2.10 (1.48-2.98)	3.50 (2.20-4.80)	14.0 (8.00-24.0)	38.0 (21.0-49.0)	42.0 (38.0-53.0)	952
	01-02	*	.690 (<LOD-1.52)	4.44 (3.32-6.48)	18.3 (12.7-25.6)	31.1 (25.0-43.3)	1420
	03-04	2.30 (1.95-2.70)	2.15 (1.70-2.53)	6.42 (4.90-7.75)	18.8 (13.3-22.5)	30.0 (23.3-45.3)	1221
	05-06	1.88 (1.64-2.14)	1.61 (1.28-1.94)	5.38 (3.96-6.38)	13.1 (9.59-20.9)	28.7 (19.5-41.7)	1243
	07-08	2.33 (2.00-2.71)	2.15 (1.85-2.50)	5.98 (4.78-7.26)	16.7 (11.8-24.7)	31.5 (21.2-48.9)	1293
Females	99-00	1.59 (1.23-2.06)	2.00 (.690-3.60)	9.70 (7.30-14.0)	38.0 (26.0-39.0)	52.0 (38.0-110)	996
	01-02	*	.430 (<LOD-1.45)	3.81 (2.68-5.85)	16.0 (10.9-22.7)	35.2 (25.0-46.1)	1596
	03-04	2.21 (1.92-2.55)	1.95 (1.68-2.29)	6.27 (4.93-7.39)	20.4 (16.4-24.0)	36.7 (27.7-47.8)	1273
	05-06	2.04 (1.79-2.33)	1.75 (1.46-2.13)	5.23 (4.49-6.10)	15.6 (10.9-20.8)	28.1 (20.8-37.9)	1388
	07-08	2.24 (1.88-2.66)	1.99 (1.57-2.52)	5.85 (4.92-7.31)	18.7 (13.4-26.0)	37.7 (27.0-50.1)	1298

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.18, 0.4, 0.5, 0.55, and 0.55 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

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Urinary Dimethylthiophosphate (DMTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.79 (1.05-3.05)	2.00 (.530-4.40)	11.0 (6.70-17.0)	39.0 (32.0-62.0)	140 (46.0-230)	671
	01-02	*	< LOD	3.93 (3.05-5.06)	15.1 (11.1-19.1)	35.6 (22.7-46.0)	763
	03-04	2.41 (1.88-3.09)	2.54 (1.41-3.98)	6.43 (4.90-8.02)	17.2 (12.0-22.3)	28.9 (19.2-39.8)	610
	05-06	2.37 (2.07-2.71)	2.26 (1.95-2.68)	5.65 (4.86-6.44)	16.4 (12.9-21.4)	28.3 (23.3-41.4)	693
	07-08	2.10 (1.83-2.42)	1.98 (1.63-2.31)	5.18 (4.17-6.61)	13.6 (11.5-20.0)	31.0 (20.0-43.5)	501
Non-Hispanic blacks	99-00	2.13 (1.57-2.88)	3.60 (2.10-4.70)	12.0 (8.80-18.0)	38.0 (20.0-41.0)	41.0 (37.0-110)	509
	01-02	1.54 (1.15-2.07)	1.18 (.580-1.97)	5.21 (3.11-8.25)	20.0 (13.4-27.2)	39.1 (25.9-62.8)	755
	03-04	2.13 (1.83-2.48)	1.85 (1.65-2.20)	5.44 (3.87-8.28)	20.4 (15.8-24.9)	31.1 (24.9-51.9)	631
	05-06	1.94 (1.63-2.31)	1.63 (1.23-2.02)	5.21 (3.93-7.18)	16.8 (13.3-21.6)	28.4 (21.5-40.6)	723
	07-08	2.12 (1.89-2.38)	1.97 (1.64-2.26)	5.63 (4.15-6.94)	20.8 (12.9-23.9)	33.5 (26.3-47.6)	573
Non-Hispanic whites	99-00	1.77 (1.23-2.53)	2.70 (.830-4.40)	11.0 (7.50-17.0)	38.0 (17.0-53.0)	48.0 (38.0-69.0)	595
	01-02	*	.540 (<LOD-1.71)	4.21 (2.77-6.48)	18.8 (10.9-25.4)	33.1 (26.6-46.5)	1252
	03-04	2.31 (2.00-2.66)	2.07 (1.73-2.41)	6.51 (5.12-7.85)	19.8 (15.4-23.3)	36.7 (27.4-47.8)	1061
	05-06	1.94 (1.67-2.26)	1.76 (1.40-1.99)	5.33 (4.32-6.19)	13.6 (9.80-22.1)	28.9 (20.2-42.8)	1005
	07-08	2.22 (1.83-2.69)	1.96 (1.57-2.48)	5.84 (4.70-7.68)	17.1 (12.4-24.3)	37.3 (25.9-48.7)	1088

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.18, 0.4, 0.5, 0.55, and 0.55 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylthiophosphate (DMTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.64 (1.22-2.20)	2.12 (1.22-3.35)	9.57 (6.59-15.8)	32.0 (23.9-41.1)	51.0 (39.0-70.1)	1948
	01-02	*	.933 (<LOD-1.40)	4.08 (2.65-6.06)	14.6 (11.5-20.5)	28.9 (24.7-39.4)	3015
	03-04	2.21 (1.92-2.55)	1.98 (1.69-2.38)	5.96 (5.07-7.16)	19.1 (14.8-22.4)	32.6 (25.8-41.9)	2491
	05-06	1.99 (1.76-2.26)	1.75 (1.56-1.90)	5.00 (4.16-6.24)	16.8 (11.8-22.1)	30.0 (24.1-38.3)	2630
	07-08	2.34 (2.05-2.66)	2.00 (1.77-2.31)	5.91 (4.88-7.09)	17.5 (13.9-23.2)	33.7 (25.7-45.9)	2589
Age group 6-11 years	99-00	2.95 (2.25-3.86)	5.32 (3.75-6.33)	19.1 (12.2-28.0)	47.0 (32.1-60.3)	66.1 (50.9-95.0)	471
	01-02	*	2.16 (1.32-3.12)	10.6 (7.84-13.6)	28.7 (18.8-45.0)	48.1 (33.4-71.1)	575
	03-04	3.40 (2.70-4.28)	3.41 (2.40-4.17)	7.91 (6.43-12.2)	25.2 (16.7-34.2)	36.1 (25.4-67.7)	310
	05-06	3.35 (2.67-4.21)	2.78 (2.03-3.66)	9.26 (5.67-15.1)	33.4 (16.8-54.3)	71.5 (28.7-161)	349
	07-08	4.35 (3.78-5.01)	4.26 (3.36-4.75)	14.1 (9.35-16.6)	32.8 (23.8-45.4)	51.3 (41.1-77.9)	385
12-19 years	99-00	1.71 (1.07-2.75)	2.14 (.890-4.83)	13.5 (6.46-22.6)	36.0 (25.6-51.4)	61.5 (41.7-109)	664
	01-02	*	.933 (<LOD-1.57)	3.56 (2.38-5.57)	12.2 (8.96-16.0)	22.5 (13.2-34.7)	821
	03-04	1.66 (1.37-2.03)	1.52 (1.19-1.82)	4.38 (3.29-5.66)	13.3 (9.94-20.5)	26.5 (15.5-36.0)	715
	05-06	1.89 (1.54-2.33)	1.81 (1.38-2.33)	4.55 (3.47-6.17)	14.3 (8.75-27.5)	32.9 (14.3-51.4)	717
	07-08	1.62 (1.27-2.06)	1.46 (1.19-1.74)	4.14 (3.12-5.52)	11.1 (5.52-20.5)	20.5 (9.61-32.2)	389
20-59 years	99-00	1.47 (1.07-2.02)	1.90 (.870-3.11)	8.09 (5.19-14.6)	27.0 (19.8-37.6)	47.5 (34.2-70.1)	813
	01-02	*	< LOD	3.16 (1.99-4.62)	11.9 (7.79-17.2)	25.2 (15.9-37.0)	1121
	03-04	1.88 (1.61-2.19)	1.67 (1.45-1.94)	4.88 (4.20-5.68)	13.9 (10.3-19.7)	30.3 (19.7-38.2)	937
	05-06	1.72 (1.52-1.96)	1.46 (1.28-1.65)	4.18 (3.14-4.99)	13.2 (9.30-21.9)	25.4 (21.4-30.3)	1091
	07-08	2.02 (1.73-2.36)	1.79 (1.52-2.05)	4.53 (3.90-5.90)	13.2 (9.47-17.2)	26.7 (17.1-41.8)	1179
60+ years	01-02	*	1.39 (<LOD-2.40)	6.38 (3.68-9.97)	24.0 (14.9-35.2)	45.5 (26.5-69.7)	498
	03-04	3.86 (2.99-4.97)	3.18 (2.46-4.84)	11.2 (7.10-18.6)	29.2 (18.6-47.9)	48.2 (24.9-113)	529
	05-06	2.61 (2.12-3.20)	2.40 (1.75-2.75)	7.66 (5.71-11.3)	19.2 (12.1-31.1)	35.3 (20.5-56.4)	473
	07-08	3.56 (2.79-4.55)	3.05 (2.31-4.13)	10.6 (6.86-14.8)	31.8 (17.7-50.2)	54.2 (34.1-87.5)	636
Gender Males	99-00	1.61 (1.11-2.34)	2.39 (1.27-3.51)	9.27 (6.00-16.9)	28.9 (19.0-40.4)	41.1 (34.9-52.9)	952
	01-02	*	.778 (<LOD-1.14)	3.82 (2.65-4.98)	13.6 (10.0-17.8)	25.2 (17.2-37.6)	1420
	03-04	1.88 (1.58-2.23)	1.76 (1.51-2.12)	4.87 (3.87-6.31)	14.4 (9.18-20.4)	25.7 (17.7-36.9)	1220
	05-06	1.59 (1.37-1.86)	1.33 (1.14-1.57)	4.06 (2.85-5.27)	13.1 (8.56-20.5)	26.0 (17.2-34.2)	1243
	07-08	1.93 (1.68-2.21)	1.62 (1.42-1.94)	4.36 (3.77-5.50)	14.2 (10.4-17.7)	25.9 (18.2-39.7)	1292
Females	99-00	1.66 (1.26-2.18)	2.01 (.870-3.33)	10.0 (6.67-16.2)	34.9 (26.2-47.1)	70.1 (39.0-118)	996
	01-02	*	1.08 (<LOD-1.65)	4.44 (2.55-7.02)	17.4 (11.9-24.8)	38.0 (27.4-51.6)	1595
	03-04	2.60 (2.23-3.02)	2.24 (1.83-2.63)	7.11 (5.54-10.2)	22.8 (18.9-28.7)	41.6 (29.2-58.9)	1271
	05-06	2.47 (2.16-2.83)	2.19 (1.83-2.44)	6.07 (4.74-8.34)	20.7 (13.8-25.6)	36.7 (26.1-46.2)	1387
	07-08	2.81 (2.40-3.29)	2.50 (2.07-2.93)	7.40 (5.83-8.83)	21.9 (16.7-27.4)	41.2 (27.4-60.8)	1297

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethylthiophosphate (DMTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.60 (.899-2.86)	1.83 (.680-4.23)	10.4 (5.95-16.9)	37.0 (23.1-63.1)	112 (40.5-190)	671
	01-02	*	< LOD	3.55 (2.65-4.68)	13.8 (9.88-22.9)	30.4 (22.9-47.2)	763
	03-04	2.20 (1.65-2.94)	2.24 (1.70-3.00)	5.95 (4.14-8.68)	15.7 (10.7-20.1)	24.5 (18.9-36.9)	609
	05-06	2.24 (1.96-2.55)	2.14 (1.89-2.40)	5.19 (4.33-6.18)	14.7 (10.9-20.0)	28.4 (21.5-36.3)	693
	07-08	2.14 (1.92-2.38)	1.88 (1.61-2.22)	4.84 (4.08-6.48)	13.2 (10.0-18.6)	26.2 (18.6-34.1)	500
Non-Hispanic blacks	99-00	1.45 (1.03-2.06)	1.75 (1.17-3.06)	8.48 (4.36-13.4)	25.5 (15.4-39.3)	54.4 (25.5-97.6)	509
	01-02	1.13 (.889-1.44)	1.00 (.693-1.23)	3.62 (2.29-5.41)	12.4 (9.17-17.5)	23.3 (17.4-43.1)	754
	03-04	1.46 (1.28-1.67)	1.22 (1.06-1.37)	3.90 (2.77-5.34)	12.7 (8.09-18.7)	26.0 (14.6-38.7)	630
	05-06	1.40 (1.14-1.71)	1.12 (.938-1.37)	3.58 (2.63-5.06)	12.0 (8.44-19.3)	25.6 (17.4-31.2)	722
	07-08	1.61 (1.45-1.80)	1.38 (1.22-1.61)	4.26 (3.41-5.20)	14.7 (10.7-18.8)	27.5 (20.9-37.4)	572
Non-Hispanic whites	99-00	1.68 (1.16-2.43)	2.22 (.870-3.51)	9.40 (5.58-17.0)	33.3 (20.6-49.4)	52.9 (39.0-71.1)	595
	01-02	*	.966 (<LOD-1.61)	4.22 (2.41-7.00)	15.9 (11.6-24.1)	33.1 (24.8-45.4)	1252
	03-04	2.40 (2.05-2.81)	2.12 (1.75-2.53)	6.27 (5.10-8.10)	20.0 (15.3-25.7)	36.2 (25.7-52.7)	1060
	05-06	2.09 (1.80-2.42)	1.78 (1.56-2.06)	5.14 (4.02-6.91)	16.8 (11.3-23.4)	30.0 (23.4-38.3)	1005
	07-08	2.40 (1.99-2.90)	2.04 (1.67-2.57)	6.00 (4.64-7.49)	16.9 (13.0-25.3)	37.6 (23.1-54.2)	1088

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethyldithiophosphate (DEDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.090 (<LOD-.140)	.210 (.140-.290)	.470 (.380-.640)	.870 (.640-1.10)	1949
	01-02	*	< LOD	< LOD	.610 (.410-.780)	.890 (.710-1.32)	3013
	03-04	*	< LOD	< LOD	< LOD	.290 (.160-.510)	2494
	05-06	*	< LOD	< LOD	< LOD	< LOD	2420
	07-08	*	< LOD	< LOD	< LOD	< LOD	2585
Age group							
6-11 years	99-00	*	.090 (<LOD-.160)	.190 (.130-.280)	.430 (.300-.650)	.850 (.470-1.00)	471
	01-02	*	< LOD	< LOD	.630 (.380-.870)	.940 (.690-1.42)	576
	03-04	*	< LOD	< LOD	< LOD	.540 (<LOD-.650)	310
	05-06	*	< LOD	< LOD	< LOD	< LOD	317
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
12-19 years	99-00	*	.080 (<LOD-.180)	.260 (.120-.350)	.640 (.420-.840)	.930 (.720-1.30)	664
	01-02	*	< LOD	< LOD	.560 (.330-.730)	.820 (.610-.990)	822
	03-04	*	< LOD	< LOD	.150 (<LOD-.350)	.450 (.370-.570)	717
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
20-59 years	99-00	*	.090 (<LOD-.130)	.210 (.130-.290)	.450 (.360-.640)	.900 (.610-1.10)	814
	01-02	*	< LOD	< LOD	.620 (.430-.760)	.830 (.700-1.32)	1118
	03-04	*	< LOD	< LOD	< LOD	.220 (<LOD-.580)	938
	05-06	*	< LOD	< LOD	< LOD	< LOD	1006
	07-08	*	< LOD	< LOD	< LOD	< LOD	1176
60 years and older	01-02	*	< LOD	< LOD	.630 (.360-1.08)	1.11 (.610-1.41)	497
	03-04	*	< LOD	< LOD	< LOD	.150 (<LOD-.550)	529
	05-06	*	< LOD	< LOD	< LOD	< LOD	437
	07-08	*	< LOD	< LOD	< LOD	< LOD	636
Gender							
Males	99-00	*	.090 (<LOD-.150)	.220 (.140-.310)	.490 (.380-.680)	.870 (.680-1.10)	952
	01-02	*	< LOD	< LOD	.600 (.380-.740)	.780 (.700-1.03)	1420
	03-04	*	< LOD	< LOD	< LOD	.390 (.160-.540)	1221
	05-06	*	< LOD	< LOD	< LOD	< LOD	1142
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
Females	99-00	*	.090 (<LOD-.130)	.190 (.110-.310)	.460 (.320-.840)	.870 (.440-1.40)	997
	01-02	*	< LOD	< LOD	.660 (.460-.880)	1.03 (.700-1.47)	1593
	03-04	*	< LOD	< LOD	< LOD	.230 (<LOD-.600)	1273
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.05, 0.1, 0.1, 0.39, and 0.39 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethyldithiophosphate (DEDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.130 (.099-.171)	.100 (.050-.200)	.310 (.230-.390)	.650 (.530-.860)	1.10 (.860-1.60)	672
	01-02	*	< LOD	.200 (<LOD-.520)	.720 (.410-1.12)	1.12 (.700-1.58)	763
	03-04	*	< LOD	< LOD	.110 (<LOD-.680)	.680 (.180-1.15)	610
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	495
Non-Hispanic blacks	99-00	.117 (.084-.162)	.090 (<LOD-.230)	.270 (.140-.410)	.560 (.400-.830)	.870 (.650-1.20)	509
	01-02	*	< LOD	< LOD	.620 (.440-.800)	.810 (.670-.930)	754
	03-04	*	< LOD	< LOD	< LOD	.250 (.110-.540)	631
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
Non-Hispanic whites	99-00	*	.080 (<LOD-.160)	.190 (.120-.290)	.450 (.310-.720)	.870 (.510-1.30)	595
	01-02	*	< LOD	< LOD	.610 (.350-.800)	.910 (.660-1.41)	1252
	03-04	*	< LOD	< LOD	< LOD	.240 (.120-.540)	1061
	05-06	*	< LOD	< LOD	< LOD	< LOD	917
	07-08	*	< LOD	< LOD	< LOD	< LOD	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.05, 0.1, 0.1, 0.39, and 0.39 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethyldithiophosphate (DEDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	.070 (<LOD-.110)	.200 (.140-.290)	.550 (.390-.700)	.860 (.670-1.14)	1949
	01-02	*	< LOD	< LOD	.604 (.389-.783)	1.08 (.768-1.52)	3012
	03-04	*	< LOD	< LOD	< LOD	.412 (.350-.507)	2491
	05-06	*	< LOD	< LOD	< LOD	< LOD	2419
	07-08	*	< LOD	< LOD	< LOD	< LOD	2583
Age group							
6-11 years	99-00	*	.100 (<LOD-.140)	.190 (.150-.270)	.570 (.410-.760)	1.03 (.570-1.58)	471
	01-02	*	< LOD	< LOD	.778 (.606-1.12)	1.36 (1.02-1.86)	576
	03-04	*	< LOD	< LOD	< LOD	.475 (<LOD-.967)	310
	05-06	*	< LOD	< LOD	< LOD	< LOD	317
	07-08	*	< LOD	< LOD	< LOD	< LOD	383
12-19 years	99-00	*	.050 (<LOD-.080)	.170 (.100-.220)	.440 (.230-.730)	.730 (.380-1.09)	664
	01-02	*	< LOD	< LOD	.359 (.250-.537)	.667 (.375-.987)	821
	03-04	*	< LOD	< LOD	.226 (<LOD-.259)	.333 (.241-.600)	715
	05-06	*	< LOD	< LOD	< LOD	< LOD	660
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
20-59 years	99-00	*	.080 (<LOD-.110)	.210 (.140-.310)	.550 (.360-.730)	.860 (.650-1.20)	814
	01-02	*	< LOD	< LOD	.583 (.379-.740)	1.03 (.699-1.60)	1118
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.537)	937
	05-06	*	< LOD	< LOD	< LOD	< LOD	1005
	07-08	*	< LOD	< LOD	< LOD	< LOD	1176
60+ years	01-02	*	< LOD	< LOD	.833 (.368-1.28)	1.44 (.853-2.61)	497
	03-04	*	< LOD	< LOD	< LOD	.438 (<LOD-.700)	529
	05-06	*	< LOD	< LOD	< LOD	< LOD	437
	07-08	*	< LOD	< LOD	< LOD	< LOD	636
Gender							
Males	99-00	*	.070 (<LOD-.110)	.190 (.140-.230)	.410 (.340-.500)	.720 (.520-.940)	952
	01-02	*	< LOD	< LOD	.389 (.309-.658)	.768 (.637-1.01)	1420
	03-04	*	< LOD	< LOD	< LOD	.339 (.269-.412)	1220
	05-06	*	< LOD	< LOD	< LOD	< LOD	1142
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
Females	99-00	*	.090 (<LOD-.120)	.220 (.140-.360)	.670 (.410-.870)	.890 (.660-1.62)	997
	01-02	*	< LOD	< LOD	.733 (.527-1.03)	1.27 (.868-2.37)	1592
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.604)	1271
	05-06	*	< LOD	< LOD	< LOD	< LOD	1277
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Diethyldithiophosphate (DEDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.116 (.084-.161)	.090 (.060-.170)	.300 (.190-.410)	.810 (.570-.990)	1.19 (.860-2.66)	672
	01-02	*	< LOD	.292 (<LOD-.444)	.845 (.487-1.24)	1.29 (.901-1.67)	763
	03-04	*	< LOD	< LOD	.318 (<LOD-.467)	.579 (.404-.940)	609
	05-06	*	< LOD	< LOD	< LOD	< LOD	665
	07-08	*	< LOD	< LOD	< LOD	< LOD	494
Non-Hispanic blacks	99-00	.080 (.057-.111)	.070 (<LOD-.110)	.170 (.110-.280)	.450 (.300-.580)	.700 (.500-1.02)	509
	01-02	*	< LOD	< LOD	.456 (.362-.593)	.769 (.541-1.07)	753
	03-04	*	< LOD	< LOD	< LOD	.269 (.196-.368)	630
	05-06	*	< LOD	< LOD	< LOD	< LOD	659
	07-08	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	99-00	*	.070 (<LOD-.120)	.200 (.140-.310)	.560 (.380-.730)	.880 (.600-1.38)	595
	01-02	*	< LOD	< LOD	.583 (.368-.868)	1.14 (.682-1.70)	1252
	03-04	*	< LOD	< LOD	< LOD	.389 (.333-.523)	1060
	05-06	*	< LOD	< LOD	< LOD	< LOD	917
	07-08	*	< LOD	< LOD	< LOD	< LOD	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethyldithiophosphate (DMDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	2.30 (1.30-3.90)	13.0 (5.00-17.0)	19.0 (17.0-38.0)	1949
	01-02	*	< LOD	.920 (.330-1.30)	2.61 (2.04-3.45)	5.96 (4.41-7.90)	3015
	03-04	*	< LOD	.700 (.570-.920)	2.54 (1.64-3.87)	5.74 (3.63-9.85)	2458
	05-06	*	< LOD	< LOD	1.96 (1.41-2.59)	3.87 (2.77-6.09)	2635
	07-08	*	< LOD	< LOD	2.37 (1.93-2.93)	5.60 (4.62-6.79)	2571
Age group							
6-11 years	99-00	.691 (.425-1.12)	.740 (.080-1.80)	4.30 (2.40-8.60)	17.0 (6.90-37.0)	32.0 (17.0-44.0)	471
	01-02	*	< LOD	1.30 (.750-2.11)	3.53 (2.20-4.50)	7.33 (4.32-9.74)	575
	03-04	*	< LOD	.900 (.620-1.14)	2.94 (1.14-5.48)	5.48 (2.94-8.53)	306
	05-06	*	< LOD	< LOD	1.84 (.540-3.35)	3.69 (2.67-9.95)	350
	07-08	*	< LOD	.950 (<LOD-1.48)	3.80 (2.45-5.70)	6.66 (5.11-9.64)	379
12-19 years	99-00	*	< LOD	2.30 (1.40-4.50)	13.0 (5.40-20.0)	20.0 (17.0-38.0)	664
	01-02	*	< LOD	.830 (.400-1.14)	2.52 (1.85-3.07)	4.63 (3.59-5.83)	821
	03-04	*	< LOD	.580 (.350-.770)	1.46 (1.12-1.99)	2.67 (1.82-4.49)	699
	05-06	*	< LOD	< LOD	2.78 (1.51-3.76)	5.98 (3.03-11.5)	718
	07-08	*	< LOD	< LOD	1.45 (.810-2.03)	2.45 (1.65-3.93)	384
20-59 years	99-00	*	< LOD	2.10 (.840-3.60)	11.0 (4.00-17.0)	17.0 (7.70-50.0)	814
	01-02	*	< LOD	.840 (<LOD-1.31)	2.32 (1.70-3.40)	4.90 (2.90-9.52)	1122
	03-04	*	< LOD	.610 (.350-.800)	2.00 (1.36-3.63)	5.07 (3.62-8.62)	925
	05-06	*	< LOD	< LOD	1.71 (.880-2.36)	3.60 (2.40-5.18)	1092
	07-08	*	< LOD	< LOD	1.84 (1.34-2.32)	4.27 (2.84-6.79)	1172
60 years and older	01-02	*	< LOD	1.02 (.540-1.37)	3.57 (2.58-5.96)	8.16 (5.04-16.1)	497
	03-04	*	< LOD	1.39 (.720-2.34)	4.09 (2.35-13.4)	13.4 (3.36-33.3)	528
	05-06	*	< LOD	< LOD	2.13 (1.67-3.34)	5.12 (2.62-8.17)	475
	07-08	*	< LOD	1.03 (<LOD-1.99)	5.47 (4.31-6.33)	8.89 (6.33-12.2)	636
Gender							
Males	99-00	*	.110 (<LOD-.610)	2.30 (1.20-4.90)	16.0 (5.70-17.0)	19.0 (17.0-38.0)	952
	01-02	*	< LOD	.890 (.370-1.28)	2.59 (1.88-3.41)	5.96 (4.47-7.86)	1420
	03-04	*	< LOD	.680 (.360-1.01)	2.26 (1.14-4.45)	5.30 (3.20-10.2)	1209
	05-06	*	< LOD	< LOD	1.96 (.980-3.04)	4.33 (2.42-7.65)	1246
	07-08	*	< LOD	< LOD	2.38 (1.76-3.70)	5.70 (3.80-10.0)	1278
Females	99-00	*	< LOD	2.20 (1.10-3.90)	11.0 (4.20-17.0)	20.0 (13.0-40.0)	997
	01-02	*	< LOD	.960 (.250-1.37)	2.61 (1.96-3.68)	5.72 (3.79-9.87)	1595
	03-04	*	< LOD	.730 (.590-.970)	2.83 (1.99-3.96)	6.15 (3.91-11.3)	1249
	05-06	*	< LOD	< LOD	1.96 (1.49-2.59)	3.75 (2.90-4.60)	1389
	07-08	*	< LOD	< LOD	2.34 (1.79-3.12)	5.54 (4.06-6.69)	1293

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.08, 0.1, 0.1, 0.51, and 0.51 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethyldithiophosphate (DMDTP) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	.250 (<LOD-.870)	1.90 (1.10-3.00)	5.80 (4.10-9.70)	12.0 (5.90-28.0)	672
	01-02	*	< LOD	1.08 (.780-1.38)	2.80 (2.19-3.54)	4.93 (3.73-7.42)	763
	03-04	*	< LOD	.730 (.360-1.21)	2.11 (1.38-3.15)	5.26 (2.31-6.94)	610
	05-06	*	< LOD	< LOD	2.04 (1.62-2.96)	5.12 (2.98-10.7)	695
	07-08	*	< LOD	< LOD	1.63 (1.18-2.12)	3.88 (2.12-6.07)	491
Non-Hispanic blacks	99-00	*	.330 (<LOD-1.20)	3.20 (1.40-7.00)	14.0 (5.70-30.0)	19.0 (17.0-39.0)	509
	01-02	*	< LOD	.640 (<LOD-1.41)	1.96 (1.36-4.15)	4.42 (2.68-8.38)	755
	03-04	*	< LOD	.590 (.310-.730)	1.77 (1.05-3.33)	4.77 (2.75-7.80)	604
	05-06	*	< LOD	< LOD	2.15 (1.66-2.82)	5.45 (2.82-8.39)	723
	07-08	*	< LOD	< LOD	2.04 (1.54-2.65)	4.27 (2.66-7.79)	568
Non-Hispanic whites	99-00	*	< LOD	2.00 (.800-4.00)	13.0 (3.90-20.0)	20.0 (16.0-40.0)	595
	01-02	*	< LOD	1.01 (.180-1.43)	2.74 (1.94-4.18)	6.72 (4.88-8.54)	1252
	03-04	*	< LOD	.740 (.540-1.04)	2.66 (1.55-4.56)	5.89 (3.63-11.6)	1056
	05-06	*	< LOD	< LOD	1.93 (1.23-2.65)	3.60 (2.71-5.51)	1007
	07-08	*	< LOD	< LOD	2.32 (1.75-3.28)	5.60 (4.46-6.88)	1087

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, and 07-08 are 0.08, 0.1, 0.1, 0.51, and 0.51 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethyldithiophosphate (DMDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	1.88 (.970-3.86)	10.1 (5.31-18.3)	21.7 (12.8-33.7)	1949
	01-02	*	< LOD	.717 (.389-1.12)	2.80 (2.21-3.96)	6.84 (4.96-8.09)	3014
	03-04	*	< LOD	.572 (.411-.772)	2.62 (1.72-4.12)	6.40 (3.85-9.75)	2455
	05-06	*	< LOD	< LOD	2.18 (1.64-3.00)	4.62 (3.23-7.12)	2634
	07-08	*	< LOD	< LOD	2.63 (2.17-3.08)	6.12 (4.15-8.24)	2569
Age group							
6-11 years	99-00	.748 (.474-1.18)	.790 (.190-1.60)	4.07 (2.31-7.18)	16.2 (8.22-27.0)	30.8 (20.2-38.9)	471
	01-02	*	< LOD	1.36 (.805-2.31)	4.10 (2.67-6.24)	6.98 (4.40-12.8)	575
	03-04	*	< LOD	.962 (.584-1.57)	3.39 (2.29-6.15)	7.12 (4.48-7.55)	306
	05-06	*	< LOD	< LOD	2.57 (1.39-4.14)	4.50 (3.17-9.35)	350
	07-08	*	< LOD	1.50 (<LOD-1.95)	4.35 (3.05-6.59)	8.01 (4.75-12.9)	379
12-19 years	99-00	*	< LOD	1.52 (.620-3.47)	9.48 (4.04-16.8)	21.5 (9.48-42.3)	664
	01-02	*	< LOD	.543 (.306-.773)	2.02 (1.49-2.40)	3.13 (2.51-4.67)	820
	03-04	*	< LOD	.361 (.241-.584)	1.02 (.628-1.57)	2.46 (1.33-3.39)	697
	05-06	*	< LOD	< LOD	2.05 (1.16-3.56)	4.27 (2.30-8.66)	718
	07-08	*	< LOD	< LOD	1.16 (.782-1.85)	1.94 (1.39-3.79)	382
20-59 years	99-00	*	< LOD	1.71 (.850-3.56)	8.50 (4.00-19.1)	20.5 (8.57-40.7)	814
	01-02	*	< LOD	.605 (<LOD-1.05)	2.56 (1.64-4.03)	6.33 (3.96-8.17)	1122
	03-04	*	< LOD	.451 (.340-.583)	2.17 (1.10-3.64)	5.71 (2.47-10.1)	924
	05-06	*	< LOD	< LOD	1.90 (1.44-2.57)	3.69 (2.37-7.07)	1091
	07-08	*	< LOD	< LOD	1.99 (1.80-2.32)	4.15 (2.77-6.77)	1172
60+ years	01-02	*	< LOD	1.10 (.631-1.86)	4.89 (3.36-7.82)	13.4 (6.98-19.8)	497
	03-04	*	< LOD	1.55 (.765-2.48)	6.52 (2.73-13.3)	13.3 (5.44-23.0)	528
	05-06	*	< LOD	< LOD	3.22 (2.25-4.54)	6.53 (3.70-10.4)	475
	07-08	*	< LOD	1.72 (<LOD-2.58)	5.92 (3.29-8.44)	10.3 (7.25-18.4)	636
Gender							
Males	99-00	*	.150 (<LOD-.370)	1.79 (.840-3.97)	11.0 (4.62-17.4)	18.1 (7.51-44.7)	952
	01-02	*	< LOD	.628 (.333-.850)	2.39 (1.75-3.13)	5.37 (4.23-7.29)	1420
	03-04	*	< LOD	.467 (.280-.743)	2.03 (.990-3.56)	5.38 (2.29-8.25)	1208
	05-06	*	< LOD	< LOD	1.80 (1.14-3.17)	4.14 (2.18-7.15)	1246
	07-08	*	< LOD	< LOD	1.89 (1.44-2.71)	4.92 (2.77-8.44)	1277
Females	99-00	*	< LOD	2.06 (.940-4.00)	9.30 (4.96-25.5)	27.0 (9.66-47.5)	997
	01-02	*	< LOD	.831 (.412-1.50)	3.35 (2.50-4.96)	7.81 (5.29-11.9)	1594
	03-04	*	< LOD	.680 (.538-.887)	3.59 (2.41-5.18)	7.12 (4.13-13.1)	1247
	05-06	*	< LOD	< LOD	2.40 (2.00-3.18)	5.25 (3.18-7.60)	1388
	07-08	*	< LOD	< LOD	3.05 (2.44-4.00)	7.18 (4.22-11.1)	1292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary Dimethyldithiophosphate (DMDTP) (creatinine corrected) (1999 – 2008)

Metabolite of Several Organophosphorus Insecticides

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	.270 (<LOD-.660)	1.35 (.860-2.53)	6.55 (3.83-11.8)	16.7 (6.25-38.8)	672
	01-02	*	< LOD	.833 (.589-1.15)	2.72 (2.05-3.32)	5.16 (3.69-7.83)	763
	03-04	*	< LOD	.651 (.318-1.09)	2.04 (1.10-3.74)	4.50 (2.17-5.88)	609
	05-06	*	< LOD	< LOD	2.40 (1.29-4.00)	5.14 (3.45-10.5)	695
	07-08	*	< LOD	< LOD	1.97 (1.50-2.77)	4.30 (2.77-6.92)	490
Non-Hispanic blacks	99-00	*	.250 (<LOD-.700)	2.40 (.690-5.44)	9.41 (4.81-17.8)	17.9 (11.5-40.7)	509
	01-02	*	< LOD	.403 (<LOD-.847)	1.69 (.793-3.50)	3.50 (2.19-5.91)	754
	03-04	*	< LOD	.343 (.242-.477)	1.07 (.727-1.84)	3.21 (1.45-6.07)	603
	05-06	*	< LOD	< LOD	1.80 (.990-3.89)	4.95 (2.93-5.59)	722
	07-08	*	< LOD	< LOD	1.79 (1.38-2.31)	4.27 (2.44-6.16)	567
Non-Hispanic whites	99-00	*	< LOD	1.77 (.780-4.02)	11.4 (4.07-21.5)	21.5 (11.4-34.8)	595
	01-02	*	< LOD	.787 (.389-1.37)	3.42 (2.48-5.24)	7.75 (5.80-9.47)	1252
	03-04	*	< LOD	.631 (.412-.897)	3.06 (1.75-5.84)	6.74 (4.42-12.0)	1055
	05-06	*	< LOD	< LOD	2.16 (1.64-3.00)	4.14 (2.91-7.59)	1007
	07-08	*	< LOD	< LOD	2.74 (2.12-3.58)	5.92 (4.00-9.71)	1087

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OP-DPM_BiomonitoringSummary.html

Urinary trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 – 2010)

Metabolite of Cyfluthrin, trans-Cypermethrin, and trans-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.560 (.480-.700)	1.40 (1.17-1.77)	3.42 (2.39-5.56)	1976
	01-02	*	< LOD	.430 (<LOD-.560)	1.18 (.930-1.64)	2.60 (1.85-3.58)	3033
	07-08	*	< LOD	< LOD	2.23 (1.58-3.30)	5.23 (3.87-7.05)	2576
	09-10	*	< LOD	< LOD	1.29 (.810-1.70)	5.42 (3.26-6.80)	2747
Age group							
6-11 years	99-00	*	< LOD	.970 (.700-1.66)	2.91 (1.76-4.19)	4.19 (2.97-11.7)	478
	01-02	*	< LOD	.470 (<LOD-.760)	1.39 (1.03-1.68)	2.50 (1.55-3.54)	576
	07-08	*	< LOD	< LOD	1.50 (.740-3.01)	4.01 (1.81-10.4)	384
	09-10	*	< LOD	< LOD	2.27 (<LOD-5.65)	8.64 (2.27-26.8)	386
12-19 years	99-00	*	< LOD	.710 (.520-.860)	2.07 (1.25-3.42)	4.28 (2.12-6.23)	675
	01-02	*	< LOD	.490 (<LOD-.670)	1.20 (.800-1.60)	2.01 (1.49-3.77)	826
	07-08	*	< LOD	< LOD	2.30 (1.13-3.73)	5.08 (2.36-7.61)	388
	09-10	*	< LOD	< LOD	< LOD	1.78 (1.05-2.50)	401
20-59 years	99-00	*	< LOD	.500 (.400-.620)	1.17 (.910-1.68)	2.94 (1.49-5.56)	823
	01-02	*	< LOD	< LOD	1.17 (.850-1.85)	2.56 (1.64-4.66)	1123
	07-08	*	< LOD	< LOD	2.15 (1.38-3.55)	5.36 (3.51-7.28)	1174
	09-10	*	< LOD	< LOD	1.13 (<LOD-1.83)	5.88 (3.24-7.71)	1309
60 years and older	01-02	*	< LOD	.460 (<LOD-.630)	1.13 (.760-2.44)	4.27 (1.20-6.49)	508
	07-08	*	< LOD	< LOD	2.33 (.850-4.26)	4.87 (2.75-9.01)	630
	09-10	*	< LOD	< LOD	1.66 (1.02-2.68)	6.09 (3.05-10.4)	651
Gender							
Males	99-00	*	< LOD	.560 (.500-.670)	1.28 (1.11-1.63)	2.25 (1.55-5.10)	961
	01-02	*	< LOD	.420 (<LOD-.500)	1.12 (.860-1.58)	2.44 (1.69-3.70)	1419
	07-08	*	< LOD	< LOD	2.20 (1.20-3.76)	5.29 (3.12-7.61)	1289
	09-10	*	< LOD	< LOD	1.12 (<LOD-1.83)	4.98 (2.88-7.03)	1343
Females	99-00	*	< LOD	.550 (.410-.820)	1.77 (1.07-3.08)	4.19 (3.08-6.81)	1015
	01-02	*	< LOD	.440 (<LOD-.630)	1.23 (.910-1.98)	2.62 (1.90-3.58)	1614
	07-08	*	< LOD	< LOD	2.27 (1.49-3.51)	5.08 (3.55-6.48)	1287
	09-10	*	< LOD	< LOD	1.33 (<LOD-2.12)	5.51 (2.87-9.82)	1404

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html

Urinary trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 – 2010)

Metabolite of Cyfluthrin, trans-Cypermethrin, and trans-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	.470 (.410-.530)	1.23 (.830-1.60)	1.87 (1.49-3.35)	691
	01-02	*	< LOD	.410 (<LOD-.510)	.860 (.680-1.14)	1.57 (1.08-2.01)	767
	07-08	*	< LOD	< LOD	1.37 (<LOD-1.99)	2.89 (1.63-4.19)	495
	09-10	*	< LOD	< LOD	< LOD	2.32 (1.06-3.76)	602
Non-Hispanic blacks	99-00	*	< LOD	.780 (.490-1.13)	1.84 (1.08-4.69)	4.69 (1.41-14.5)	518
	01-02	*	< LOD	.590 (.490-.740)	1.26 (1.05-1.70)	2.25 (1.54-3.32)	764
	07-08	*	< LOD	< LOD	2.24 (1.26-3.30)	4.25 (3.38-8.10)	569
	09-10	*	< LOD	< LOD	1.78 (<LOD-4.06)	5.14 (2.59-8.69)	504
Non-Hispanic whites	99-00	*	< LOD	.560 (.460-.730)	1.41 (1.14-2.14)	3.89 (2.14-6.43)	595
	01-02	*	< LOD	.410 (<LOD-.580)	1.18 (.850-1.85)	2.64 (1.85-4.27)	1278
	07-08	*	< LOD	< LOD	2.24 (1.38-3.76)	5.23 (3.96-6.48)	1082
	09-10	*	< LOD	< LOD	1.29 (.690-1.88)	6.13 (3.24-9.30)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.4, 0.4, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html

Urinary trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 – 2010)

Metabolite of Cyfluthrin, trans-Cypermethrin, and trans-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.700 (.609-.778)	1.56 (1.33-1.87)	2.65 (2.15-3.89)	1976
	01-02	*	< LOD	.737 (<LOD-.796)	1.47 (1.32-1.87)	2.62 (2.31-3.11)	3031
	07-08	*	< LOD	< LOD	2.90 (2.21-3.81)	5.15 (4.20-6.40)	2574
	09-10	*	< LOD	< LOD	2.10 (1.91-2.47)	4.37 (3.73-5.83)	2747
Age group							
6-11 years	99-00	*	< LOD	1.31 (.718-1.74)	2.37 (1.56-5.07)	5.60 (1.91-11.3)	478
	01-02	*	< LOD	.903 (<LOD-1.13)	2.16 (1.40-2.61)	2.87 (2.34-3.44)	576
	07-08	*	< LOD	< LOD	2.46 (2.07-3.46)	4.18 (2.47-9.69)	384
	09-10	*	< LOD	< LOD	2.61 (<LOD-5.87)	6.85 (2.61-38.8)	386
12-19 years	99-00	*	< LOD	.525 (.438-.727)	1.42 (.824-2.19)	2.19 (1.34-4.31)	675
	01-02	*	< LOD	.528 (<LOD-.657)	.966 (.800-1.29)	1.57 (1.07-2.60)	825
	07-08	*	< LOD	< LOD	2.06 (1.16-4.97)	5.51 (2.06-7.15)	386
	09-10	*	< LOD	< LOD	< LOD	1.83 (1.25-2.75)	401
20-59 years	99-00	*	< LOD	.700 (.571-.769)	1.33 (1.12-1.87)	2.39 (1.87-3.36)	823
	01-02	*	< LOD	< LOD	1.47 (1.22-2.00)	2.55 (2.07-3.11)	1123
	07-08	*	< LOD	< LOD	2.87 (2.15-3.82)	5.09 (3.83-6.81)	1174
	09-10	*	< LOD	< LOD	2.10 (<LOD-2.63)	4.37 (3.63-6.16)	1309
60 years and older	01-02	*	< LOD	.826 (<LOD-.933)	2.00 (1.22-2.80)	3.47 (2.15-6.57)	507
	07-08	*	< LOD	< LOD	3.50 (2.21-4.83)	5.85 (3.65-8.56)	630
	09-10	*	< LOD	< LOD	2.56 (2.00-3.72)	6.04 (3.82-13.7)	651
Gender							
Males	99-00	*	< LOD	.562 (.484-.667)	1.26 (1.07-1.42)	2.15 (1.47-2.74)	961
	01-02	*	< LOD	.529 (<LOD-.583)	1.09 (.966-1.35)	2.25 (1.57-2.57)	1419
	07-08	*	< LOD	< LOD	2.10 (1.36-3.47)	4.85 (3.20-5.95)	1288
	09-10	*	< LOD	< LOD	1.86 (<LOD-2.25)	3.98 (2.63-6.04)	1343
Females	99-00	*	< LOD	.875 (.718-1.11)	1.91 (1.48-2.39)	3.67 (2.30-6.28)	1015
	01-02	*	< LOD	.903 (<LOD-1.00)	1.90 (1.56-2.15)	3.03 (2.55-3.20)	1612
	07-08	*	< LOD	< LOD	3.50 (2.37-4.69)	6.23 (4.20-9.69)	1286
	09-10	*	< LOD	< LOD	2.48 (<LOD-2.95)	5.30 (3.54-8.27)	1404

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html

Urinary trans-3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 – 2010)

Metabolite of Cyfluthrin, trans-Cypermethrin, and trans-Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	.583 (.500-.745)	1.35 (1.02-1.65)	2.00 (1.56-2.80)	691
	01-02	*	< LOD	.573 (<LOD-.651)	1.08 (.909-1.22)	1.87 (1.39-2.15)	767
	07-08	*	< LOD	< LOD	1.87 (<LOD-2.94)	3.20 (2.07-4.16)	494
	09-10	*	< LOD	< LOD	< LOD	2.57 (2.02-3.50)	602
Non-Hispanic blacks	99-00	*	< LOD	.571 (.467-.739)	1.70 (.853-3.13)	3.36 (1.87-8.91)	518
	01-02	*	< LOD	.490 (.433-.571)	1.17 (.848-1.56)	2.37 (1.40-2.89)	763
	07-08	*	< LOD	< LOD	2.00 (1.56-2.63)	4.85 (2.31-8.30)	568
	09-10	*	< LOD	< LOD	1.75 (<LOD-2.25)	3.50 (2.13-6.13)	504
Non-Hispanic whites	99-00	*	< LOD	.757 (.695-.848)	1.64 (1.33-2.00)	3.31 (2.00-5.60)	595
	01-02	*	< LOD	.778 (<LOD-.848)	1.56 (1.34-2.00)	2.63 (2.30-3.16)	1277
	07-08	*	< LOD	< LOD	3.10 (2.21-4.20)	5.34 (4.46-7.21)	1082
	09-10	*	< LOD	< LOD	2.46 (1.91-3.00)	4.91 (3.73-7.83)	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_Cypermethrin_Permethrin_BiomonitoringSummary.html

Urinary cis-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid (1999 – 2010)

Metabolite of Deltamethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1698
	01-02	*	< LOD	< LOD	< LOD	< LOD	3048
	07-08	*	< LOD	< LOD	< LOD	< LOD	2583
	09-10	*	< LOD	< LOD	< LOD	< LOD	2746
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	415
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	570
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	713
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	< LOD	1177
	09-10	*	< LOD	< LOD	< LOD	< LOD	1308
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	818
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	880
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	578
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	< LOD	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	445
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
	09-10	*	< LOD	< LOD	< LOD	< LOD	503
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	527
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	07-08	*	< LOD	< LOD	< LOD	< LOD	1082
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.1, 0.1, 0.5, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Deltamethrin_BiomonitoringSummary.html

Urinary cis-3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid (creatinine corrected) (1999 – 2010)

Metabolite of Deltamethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1698
	01-02	*	< LOD	< LOD	< LOD	< LOD	3046
	07-08	*	< LOD	< LOD	< LOD	< LOD	2581
	09-10	*	< LOD	< LOD	< LOD	< LOD	2746
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	415
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	< LOD	384
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	570
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	387
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	713
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	< LOD	1177
	09-10	*	< LOD	< LOD	< LOD	< LOD	1308
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	< LOD	< LOD	633
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	818
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	880
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	< LOD	< LOD	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	578
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	< LOD	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	445
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	07-08	*	< LOD	< LOD	< LOD	< LOD	571
	09-10	*	< LOD	< LOD	< LOD	< LOD	503
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	527
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	< LOD	< LOD	1082
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Deltamethrin_BiomonitoringSummary.html

Urinary 4-Fluoro-3-phenoxybenzoic acid (1999 – 2010)

Metabolite of Cyfluthrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1949
	01-02	*	< LOD	< LOD	< LOD	< LOD	3048
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	2588
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	473
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	.120 (<LOD-.160)	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	662
	01-02	*	< LOD	< LOD	< LOD	< LOD	831
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	.170 (<LOD-.290)	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	509
	07-08	*	< LOD	< LOD	< LOD	.120 (<LOD-.260)	633
	09-10	*	< LOD	< LOD	< LOD	.220 (<LOD-.720)	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	950
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	.160 (<LOD-.270)	1293
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	999
	01-02	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1295
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	666
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	.160 (<LOD-.240)	500
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	517
	01-02	*	< LOD	< LOD	< LOD	< LOD	776
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.250)	574
	09-10	*	< LOD	< LOD	< LOD	.250 (<LOD-1.02)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	594
	01-02	*	< LOD	< LOD	< LOD	< LOD	1281
	07-08	*	< LOD	< LOD	< LOD	.140 (<LOD-.210)	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.2, 0.2, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_BiomonitoringSummary.html

Urinary 4-Fluoro-3-phenoxybenzoic acid (creatinine corrected) (1999 – 2010)

Metabolite of Cyfluthrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1949
	01-02	*	< LOD	< LOD	< LOD	< LOD	3046
	07-08	*	< LOD	< LOD	< LOD	.350 (<LOD-.412)	2586
	09-10	*	< LOD	< LOD	< LOD	< LOD	2747
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	473
	01-02	*	< LOD	< LOD	< LOD	< LOD	580
	07-08	*	< LOD	< LOD	< LOD	.374 (<LOD-.412)	385
	09-10	*	< LOD	< LOD	< LOD	< LOD	386
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	662
	01-02	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	388
	09-10	*	< LOD	< LOD	< LOD	< LOD	401
20-59 years	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	1128
	07-08	*	< LOD	< LOD	< LOD	.368 (<LOD-.467)	1180
	09-10	*	< LOD	< LOD	< LOD	< LOD	1309
60 years and older	01-02	*	< LOD	< LOD	< LOD	< LOD	508
	07-08	*	< LOD	< LOD	< LOD	.389 (<LOD-.476)	633
	09-10	*	< LOD	< LOD	< LOD	.467 (<LOD-.700)	651
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	950
	01-02	*	< LOD	< LOD	< LOD	< LOD	1429
	07-08	*	< LOD	< LOD	< LOD	.233 (<LOD-.280)	1292
	09-10	*	< LOD	< LOD	< LOD	< LOD	1343
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	999
	01-02	*	< LOD	< LOD	< LOD	< LOD	1617
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	666
	01-02	*	< LOD	< LOD	< LOD	< LOD	767
	07-08	*	< LOD	< LOD	< LOD	.333 (<LOD-.414)	499
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	517
	01-02	*	< LOD	< LOD	< LOD	< LOD	775
	07-08	*	< LOD	< LOD	< LOD	.235 (<LOD-.292)	573
	09-10	*	< LOD	< LOD	< LOD	.333 (<LOD-.788)	504
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	594
	01-02	*	< LOD	< LOD	< LOD	< LOD	1280
	07-08	*	< LOD	< LOD	< LOD	.368 (<LOD-.438)	1084
	09-10	*	< LOD	< LOD	< LOD	< LOD	1200

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyfluthrin_BiomonitoringSummary.html

Urinary 3-Phenoxybenzoic acid (1999 – 2010)

Metabolite of Cypermethrin, Deltamethrin, and Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.292 (.247-.345)	.250 (.190-.320)	.730 (.590-.850)	1.75 (1.49-2.16)	4.33 (2.62-6.30)	1998
	01-02	.318 (.275-.368)	.270 (.220-.340)	.700 (.570-.810)	1.73 (1.49-2.16)	3.54 (2.69-5.25)	3048
	07-08	.401 (.350-.460)	.390 (.340-.450)	1.10 (.870-1.39)	3.22 (2.55-4.19)	6.63 (4.99-8.24)	2454
	09-10	.418 (.389-.449)	.400 (.350-.460)	1.06 (.970-1.19)	3.12 (2.69-3.77)	6.50 (5.57-8.04)	2723
Age group							
6-11 years	99-00	.417 (.292-.595)	.320 (.210-.490)	1.12 (.700-1.60)	4.18 (2.02-6.54)	8.63 (3.89-71.1)	483
	01-02	.325 (.260-.406)	.300 (.200-.420)	.760 (.570-1.05)	1.81 (1.42-2.78)	3.38 (2.25-4.12)	580
	07-08	.397 (.339-.464)	.360 (.280-.410)	1.13 (.780-1.55)	3.40 (2.19-5.87)	9.88 (3.40-17.3)	371
	09-10	.549 (.389-.774)	.480 (.350-.700)	1.43 (1.00-2.15)	4.43 (2.80-8.04)	8.51 (4.12-39.4)	383
12-19 years	99-00	.336 (.265-.427)	.290 (.200-.440)	.870 (.620-1.04)	1.93 (1.49-2.90)	4.33 (1.83-11.1)	682
	01-02	.353 (.288-.434)	.300 (.250-.390)	.800 (.560-1.13)	1.86 (1.48-2.35)	3.45 (2.14-6.69)	831
	07-08	.393 (.273-.565)	.360 (.200-.640)	1.15 (.720-1.83)	2.96 (2.11-6.73)	7.42 (2.96-12.1)	361
	09-10	.403 (.346-.470)	.410 (.310-.510)	.970 (.810-1.29)	2.25 (1.80-3.19)	3.92 (2.55-5.85)	398
20-59 years	99-00	.267 (.227-.314)	.230 (.160-.300)	.640 (.510-.820)	1.49 (1.25-1.78)	3.21 (2.04-5.41)	833
	01-02	.314 (.271-.364)	.270 (.220-.340)	.670 (.530-.780)	1.65 (1.27-2.34)	3.25 (2.51-6.16)	1128
	07-08	.427 (.376-.485)	.420 (.370-.470)	1.11 (.900-1.39)	3.38 (2.42-4.99)	6.65 (4.86-9.69)	1110
	09-10	.416 (.382-.454)	.390 (.330-.470)	1.07 (.930-1.23)	3.50 (2.67-4.45)	6.95 (5.57-9.31)	1296
60 years and older	01-02	.303 (.233-.394)	.250 (.180-.350)	.690 (.490-1.10)	2.03 (1.45-3.68)	5.16 (2.77-6.61)	509
	07-08	.335 (.270-.416)	.300 (.210-.470)	1.05 (.690-1.54)	2.68 (1.84-3.97)	4.70 (2.83-6.43)	612
	09-10	.382 (.343-.427)	.360 (.290-.450)	.980 (.860-1.17)	2.56 (2.07-2.88)	5.93 (3.21-8.95)	646
Gender							
Males	99-00	.273 (.226-.330)	.250 (.180-.330)	.710 (.570-.820)	1.49 (1.29-1.73)	2.41 (1.92-3.79)	974
	01-02	.326 (.281-.379)	.300 (.230-.360)	.690 (.570-.750)	1.60 (1.37-2.15)	3.23 (2.56-5.25)	1429
	07-08	.419 (.361-.487)	.430 (.370-.500)	1.11 (.830-1.48)	3.12 (2.15-4.58)	5.91 (4.19-7.56)	1215
	09-10	.421 (.391-.454)	.400 (.340-.450)	1.07 (.900-1.29)	3.21 (2.51-4.45)	6.50 (5.51-9.07)	1331
Females	99-00	.311 (.253-.384)	.250 (.190-.340)	.740 (.510-.990)	2.30 (1.63-3.36)	6.03 (3.27-11.8)	1024
	01-02	.311 (.260-.371)	.250 (.200-.320)	.730 (.550-.920)	1.81 (1.53-2.47)	3.76 (2.51-6.55)	1619
	07-08	.385 (.322-.462)	.360 (.290-.450)	1.07 (.820-1.42)	3.30 (2.32-5.30)	6.79 (5.15-9.69)	1239
	09-10	.415 (.366-.471)	.400 (.350-.480)	1.06 (.910-1.26)	2.92 (2.51-3.84)	6.50 (4.89-8.50)	1392
Race/ethnicity							
Mexican Americans	99-00	.260 (.230-.295)	.230 (.190-.270)	.600 (.430-.750)	1.35 (1.16-1.53)	2.18 (1.53-3.26)	697
	01-02	.290 (.233-.361)	.260 (.190-.350)	.650 (.490-.810)	1.26 (.860-2.17)	2.65 (1.50-3.44)	767
	07-08	.369 (.302-.451)	.400 (.280-.460)	.940 (.740-1.15)	2.27 (1.58-3.39)	3.62 (2.70-12.7)	476
	09-10	.371 (.316-.436)	.380 (.300-.480)	.830 (.750-1.02)	1.93 (1.55-2.53)	3.70 (2.53-4.81)	596
Non-Hispanic blacks	99-00	.454 (.352-.586)	.450 (.350-.610)	1.13 (.750-1.46)	2.32 (1.45-5.35)	5.35 (2.32-21.1)	524
	01-02	.507 (.430-.599)	.520 (.440-.630)	.980 (.840-1.20)	2.03 (1.72-2.52)	3.86 (3.05-5.84)	776
	07-08	.420 (.353-.501)	.430 (.320-.540)	1.12 (.770-1.66)	3.11 (2.44-4.26)	6.13 (4.12-8.39)	533
	09-10	.464 (.349-.616)	.500 (.360-.650)	1.29 (.790-1.94)	2.86 (2.07-4.59)	5.86 (3.42-8.50)	499
Non-Hispanic whites	99-00	.288 (.233-.355)	.240 (.160-.320)	.710 (.530-.850)	1.78 (1.41-3.05)	5.34 (2.62-8.43)	603
	01-02	.297 (.248-.355)	.240 (.190-.320)	.600 (.490-.780)	1.75 (1.46-2.34)	3.70 (2.52-6.16)	1281
	07-08	.394 (.329-.470)	.380 (.310-.450)	1.09 (.780-1.42)	3.38 (2.42-4.92)	6.53 (5.15-8.24)	1040
	09-10	.412 (.384-.441)	.370 (.330-.420)	1.06 (.920-1.19)	3.83 (2.82-4.46)	8.08 (5.93-11.1)	1192

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 07-08, and 09-10 are 0.1, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyhalothrin_Cypermethrin_Deltamethrin_Fenpropathrin_Permethrin_Tralomethrin_BiomonitoringSummary.html

Urinary 3-Phenoxybenzoic acid (creatinine corrected) (1999 – 2010)

Metabolite of Cypermethrin, Deltamethrin, and Permethrin

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.261 (.224-.304)	.246 (.203-.280)	.550 (.459-.629)	1.40 (1.13-1.73)	3.19 (2.16-4.55)	1998
	01-02	.324 (.284-.371)	.290 (.247-.336)	.600 (.512-.743)	1.54 (1.26-1.91)	3.35 (2.50-4.92)	3046
	07-08	.426 (.374-.485)	.384 (.333-.450)	1.02 (.886-1.19)	3.08 (2.31-4.04)	5.83 (4.52-7.51)	2452
	09-10	.438 (.409-.469)	.384 (.342-.432)	1.01 (.898-1.13)	2.88 (2.50-3.19)	5.44 (4.52-6.38)	2723
Age group							
6-11 years	99-00	.450 (.299-.677)	.371 (.241-.592)	1.13 (.733-1.62)	3.97 (1.75-8.07)	9.91 (2.43-64.0)	483
	01-02	.423 (.335-.534)	.383 (.296-.500)	.864 (.594-1.35)	2.21 (1.61-2.95)	3.32 (2.64-5.40)	580
	07-08	.511 (.431-.605)	.448 (.363-.545)	1.20 (.886-1.83)	3.81 (2.13-7.27)	9.86 (3.81-15.7)	371
	09-10	.744 (.537-1.03)	.667 (.503-838)	1.87 (1.30-2.60)	4.73 (2.88-9.57)	10.2 (4.48-51.9)	383
12-19 years	99-00	.227 (.178-.290)	.205 (.156-.269)	.486 (.379-.732)	1.37 (1.03-1.62)	2.52 (1.41-4.44)	682
	01-02	.274 (.229-.328)	.236 (.189-.313)	.539 (.424-.730)	1.11 (.864-1.63)	2.35 (1.36-6.19)	830
	07-08	.316 (.230-.434)	.281 (.191-.425)	.869 (.523-1.29)	3.13 (1.47-4.37)	5.41 (3.36-9.20)	359
	09-10	.347 (.302-.399)	.301 (.256-.397)	.733 (.575-.903)	1.53 (1.33-2.46)	2.64 (1.76-3.75)	398
20-59 years	99-00	.246 (.216-.278)	.239 (.200-.272)	.505 (.405-.590)	1.11 (.861-1.49)	2.53 (1.73-4.09)	833
	01-02	.311 (.271-.357)	.282 (.245-.328)	.552 (.444-.673)	1.44 (1.02-1.91)	3.22 (1.91-4.92)	1128
	07-08	.443 (.384-.510)	.401 (.353-.472)	1.01 (.867-1.16)	2.95 (2.22-4.04)	6.29 (4.18-8.05)	1110
	09-10	.419 (.389-.451)	.365 (.326-.421)	.993 (.826-1.10)	2.93 (2.35-3.62)	4.72 (4.17-6.15)	1296
60 years and older	01-02	.372 (.301-.462)	.319 (.241-.406)	.785 (.541-1.05)	2.16 (1.30-3.50)	4.65 (2.63-6.15)	508
	07-08	.418 (.351-.498)	.363 (.288-.473)	1.06 (.832-1.59)	3.11 (2.22-4.43)	4.93 (3.37-7.62)	612
	09-10	.455 (.417-.496)	.397 (.342-.455)	1.06 (.875-1.30)	2.88 (2.37-3.61)	5.44 (3.77-8.53)	646
Gender							
Males	99-00	.210 (.173-.253)	.195 (.152-.254)	.513 (.388-.582)	1.09 (.841-1.41)	1.72 (1.49-2.52)	974
	01-02	.269 (.233-.310)	.239 (.203-.280)	.500 (.429-.571)	1.27 (1.05-1.59)	2.95 (1.74-4.00)	1429
	07-08	.359 (.314-.411)	.333 (.291-.392)	.840 (.722-1.00)	2.58 (1.58-3.57)	4.42 (3.40-6.46)	1214
	09-10	.377 (.348-.409)	.323 (.295-.368)	.865 (.744-1.01)	2.48 (1.98-2.97)	4.72 (3.53-6.45)	1331
Females	99-00	.323 (.270-.387)	.273 (.235-.333)	.608 (.477-.743)	1.94 (1.35-3.00)	5.04 (3.19-6.90)	1024
	01-02	.388 (.331-.455)	.344 (.284-.408)	.737 (.563-.938)	1.84 (1.46-2.35)	4.43 (2.62-5.59)	1617
	07-08	.500 (.416-.601)	.433 (.355-.540)	1.28 (.995-1.60)	3.56 (2.40-4.93)	7.20 (5.15-9.57)	1238
	09-10	.505 (.453-.564)	.446 (.394-.500)	1.15 (1.00-1.33)	3.19 (2.54-3.73)	5.86 (4.58-8.90)	1392
Race/ethnicity							
Mexican Americans	99-00	.234 (.202-.272)	.219 (.187-.234)	.475 (.368-.594)	1.04 (.700-1.39)	1.67 (1.06-3.00)	697
	01-02	.274 (.230-.328)	.242 (.206-.316)	.512 (.404-.654)	1.03 (.750-1.67)	1.83 (1.15-2.75)	767
	07-08	.386 (.320-.466)	.379 (.287-.488)	.911 (.692-1.24)	1.94 (1.47-2.38)	3.16 (2.08-9.55)	475
	09-10	.390 (.341-.446)	.355 (.305-.438)	.696 (.631-.774)	1.62 (1.40-2.15)	3.22 (2.19-3.89)	596
Non-Hispanic blacks	99-00	.309 (.238-.401)	.268 (.224-.353)	.636 (.456-.935)	1.49 (1.05-3.43)	3.86 (1.51-7.25)	524
	01-02	.374 (.308-.455)	.357 (.290-.430)	.675 (.561-.817)	1.44 (1.20-2.31)	2.91 (2.03-3.76)	775
	07-08	.335 (.287-.391)	.320 (.269-.375)	.748 (.621-1.03)	2.30 (1.68-3.35)	4.62 (3.21-6.54)	532
	09-10	.352 (.281-.442)	.360 (.289-.436)	.865 (.587-1.21)	1.93 (1.48-2.59)	4.03 (2.43-4.91)	499
Non-Hispanic whites	99-00	.272 (.225-.329)	.250 (.200-.292)	.552 (.443-.667)	1.55 (1.09-2.27)	4.02 (2.07-5.49)	603
	01-02	.321 (.274-.377)	.281 (.238-.333)	.586 (.468-.811)	1.59 (1.26-2.19)	3.57 (2.25-5.59)	1280
	07-08	.438 (.369-.519)	.368 (.304-.488)	1.00 (.849-1.23)	3.41 (2.41-4.37)	6.29 (4.52-8.37)	1040
	09-10	.451 (.417-.488)	.388 (.328-.438)	1.07 (.889-1.25)	3.16 (2.63-3.71)	6.09 (4.69-9.08)	1192

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cyhalothrin_Cypermethrin_Deltamethrin_Fenpropathrin_Permethrin_Tralomethrin_BiomonitoringSummary.html

Urinary Antimony (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.132 (.120-.145)	.130 (.120-.150)	.220 (.200-.230)	.330 (.300-.350)	.430 (.390-.470)	2276
	01-02	.134 (.126-.142)	.130 (.130-.140)	.190 (.180-.200)	.270 (.250-.310)	.350 (.320-.400)	2690
	03-04	*	.080 (<LOD-.090)	.130 (.120-.150)	.200 (.190-.220)	.280 (.250-.320)	2558
	05-06	.073 (.066-.081)	.070 (.070-.080)	.120 (.110-.140)	.220 (.180-.250)	.300 (.270-.360)	2576
	07-08	.061 (.057-.066)	.060 (.060-.060)	.100 (.090-.110)	.170 (.140-.200)	.240 (.220-.260)	2627
	09-10	.056 (.053-.059)	.050 (.050-.060)	.090 (.090-.100)	.170 (.140-.180)	.230 (.200-.280)	2847
Age group							
6-11 years	99-00	.176 (.154-.200)	.190 (.160-.210)	.260 (.230-.280)	.350 (.300-.400)	.440 (.320-.600)	316
	01-02	.146 (.134-.160)	.150 (.130-.160)	.200 (.180-.210)	.270 (.240-.330)	.340 (.280-.440)	368
	03-04	.099 (.087-.114)	.100 (.070-.120)	.160 (.120-.200)	.240 (.190-.310)	.310 (.230-.330)	290
	05-06	.075 (.063-.088)	.080 (.060-.090)	.110 (.090-.130)	.190 (.120-.260)	.240 (.170-.340)	355
	07-08	.068 (.061-.077)	.070 (.060-.080)	.110 (.090-.130)	.170 (.150-.210)	.230 (.180-.280)	394
	09-10	.069 (.061-.079)	.070 (.060-.080)	.120 (.100-.150)	.220 (.150-.260)	.260 (.230-.350)	378
12-19 years	99-00	.158 (.141-.178)	.170 (.150-.180)	.240 (.210-.270)	.350 (.290-.420)	.460 (.350-.510)	663
	01-02	.169 (.156-.184)	.160 (.150-.180)	.240 (.220-.260)	.350 (.320-.410)	.460 (.400-.500)	762
	03-04	.105 (.095-.115)	.100 (.090-.120)	.150 (.140-.160)	.230 (.200-.270)	.290 (.250-.370)	725
	05-06	.092 (.083-.101)	.090 (.080-.100)	.140 (.130-.160)	.240 (.200-.270)	.280 (.250-.320)	701
	07-08	.079 (.069-.091)	.080 (.070-.090)	.130 (.110-.140)	.210 (.150-.230)	.230 (.210-.340)	376
	09-10	.063 (.056-.071)	.060 (.050-.070)	.100 (.090-.120)	.180 (.150-.210)	.270 (.180-.370)	451
20 years and older	99-00	.123 (.112-.137)	.120 (.110-.130)	.200 (.180-.220)	.310 (.290-.350)	.430 (.390-.470)	1297
	01-02	.128 (.119-.136)	.130 (.120-.130)	.180 (.170-.190)	.250 (.220-.300)	.330 (.280-.390)	1560
	03-04	*	.070 (<LOD-.080)	.120 (.100-.140)	.190 (.170-.210)	.270 (.220-.320)	1543
	05-06	.070 (.064-.078)	.070 (.060-.080)	.120 (.110-.140)	.220 (.180-.270)	.320 (.260-.420)	1520
	07-08	.058 (.054-.062)	.060 (.050-.060)	.090 (.090-.100)	.160 (.130-.190)	.240 (.210-.270)	1857
	09-10	.054 (.051-.057)	.050 (.050-.050)	.090 (.080-.090)	.150 (.140-.180)	.220 (.190-.270)	2018
Gender							
Males	99-00	.143 (.131-.157)	.150 (.130-.160)	.240 (.220-.260)	.350 (.330-.390)	.470 (.390-.570)	1132
	01-02	.145 (.136-.154)	.140 (.130-.150)	.200 (.190-.210)	.310 (.280-.330)	.390 (.350-.440)	1335
	03-04	.095 (.088-.103)	.090 (.080-.100)	.140 (.130-.160)	.220 (.200-.250)	.320 (.270-.350)	1281
	05-06	.085 (.076-.095)	.080 (.080-.090)	.140 (.120-.160)	.250 (.210-.290)	.350 (.260-.460)	1271
	07-08	.068 (.062-.076)	.070 (.060-.070)	.110 (.100-.120)	.210 (.170-.230)	.280 (.230-.340)	1327
	09-10	.060 (.055-.065)	.060 (.050-.070)	.100 (.090-.110)	.170 (.150-.200)	.250 (.200-.290)	1397
Females	99-00	.122 (.109-.137)	.120 (.110-.140)	.200 (.180-.220)	.300 (.280-.340)	.400 (.350-.460)	1144
	01-02	.125 (.117-.133)	.120 (.120-.130)	.180 (.160-.190)	.240 (.220-.280)	.320 (.260-.360)	1355
	03-04	*	< LOD	.120 (.090-.140)	.180 (.150-.220)	.230 (.190-.330)	1277
	05-06	.063 (.057-.071)	.060 (.050-.070)	.100 (.090-.120)	.180 (.150-.230)	.270 (.200-.330)	1305
	07-08	.055 (.052-.058)	.050 (.050-.060)	.090 (.080-.100)	.130 (.120-.150)	.200 (.170-.230)	1300
	09-10	.052 (.049-.056)	.050 (.040-.050)	.090 (.080-.090)	.150 (.130-.170)	.220 (.190-.270)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.032, 0.032, and 0.032 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Antimony (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.132 (.108-.161)	.140 (.120-.170)	.210 (.180-.240)	.300 (.260-.390)	.430 (.330-.560)	787
	01-02	.142 (.130-.154)	.130 (.130-.150)	.200 (.170-.230)	.260 (.240-.320)	.360 (.300-.400)	683
	03-04	.093 (.079-.110)	.090 (<LOD-.120)	.140 (.120-.160)	.190 (.160-.260)	.270 (.210-.330)	618
	05-06	.093 (.082-.105)	.090 (.080-.100)	.150 (.140-.170)	.250 (.210-.340)	.470 (.270-.850)	652
	07-08	.069 (.060-.079)	.070 (.060-.080)	.110 (.100-.120)	.190 (.150-.250)	.270 (.220-.390)	515
	09-10	.063 (.060-.067)	.060 (.060-.070)	.110 (.090-.120)	.170 (.150-.200)	.250 (.200-.270)	613
Non-Hispanic blacks	99-00	.175 (.148-.207)	.180 (.150-.200)	.260 (.230-.300)	.400 (.310-.490)	.490 (.410-.710)	554
	01-02	.180 (.164-.197)	.170 (.160-.190)	.250 (.220-.280)	.360 (.320-.410)	.460 (.370-.530)	667
	03-04	.108 (.098-.119)	.110 (.100-.120)	.160 (.150-.190)	.230 (.200-.280)	.310 (.250-.360)	723
	05-06	.088 (.077-.100)	.090 (.080-.100)	.140 (.130-.170)	.210 (.190-.250)	.280 (.240-.320)	692
	07-08	.085 (.079-.092)	.080 (.080-.090)	.130 (.120-.140)	.210 (.180-.250)	.290 (.250-.370)	589
	09-10	.073 (.065-.081)	.070 (.060-.080)	.120 (.110-.140)	.190 (.160-.250)	.280 (.220-.350)	544
Non-Hispanic whites	99-00	.128 (.115-.144)	.130 (.110-.140)	.210 (.190-.230)	.330 (.280-.350)	.400 (.360-.500)	768
	01-02	.126 (.117-.135)	.130 (.120-.130)	.180 (.170-.190)	.250 (.230-.300)	.340 (.310-.390)	1132
	03-04	*	.070 (<LOD-.080)	.130 (.110-.140)	.190 (.170-.210)	.280 (.230-.320)	1074
	05-06	.069 (.062-.077)	.070 (.060-.080)	.110 (.100-.130)	.210 (.170-.260)	.300 (.240-.380)	1041
	07-08	.057 (.052-.063)	.060 (.050-.060)	.090 (.080-.110)	.150 (.130-.200)	.230 (.190-.260)	1095
	09-10	.053 (.050-.057)	.050 (.040-.050)	.090 (.080-.090)	.160 (.130-.190)	.230 (.190-.280)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.032, 0.032, and 0.032 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Antimony (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.047 (.042-.052)	.083 (.075-.091)	.144 (.125-.158)	.188 (.169-.222)	2504
	13-14	.043 (.039-.048)	.041 (.036-.046)	.076 (.069-.086)	.130 (.120-.144)	.189 (.170-.214)	2664
Age group							
6-11 years	11-12	.064 (.059-.069)	.059 (.049-.072)	.108 (.094-.124)	.169 (.152-.188)	.206 (.182-.257)	399
	13-14	.052 (.045-.060)	.053 (.046-.065)	.096 (.089-.105)	.151 (.128-.172)	.228 (.168-.254)	402
12-19 years	11-12	.065 (.057-.073)	.065 (.048-.081)	.106 (.098-.126)	.173 (.137-.202)	.218 (.166-.283)	390
	13-14	.051 (.043-.061)	.051 (.041-.062)	.088 (.070-.112)	.138 (.121-.166)	.203 (.152-.235)	451
20 years and older	11-12	*	.044 (<LOD-.051)	.076 (.066-.087)	.129 (.112-.152)	.171 (.158-.228)	1715
	13-14	.042 (.038-.045)	.039 (.033-.043)	.071 (.065-.079)	.128 (.116-.137)	.184 (.161-.215)	1811
Gender							
Males	11-12	.057 (.052-.063)	.052 (.044-.061)	.089 (.080-.100)	.152 (.124-.169)	.196 (.169-.259)	1262
	13-14	.048 (.044-.052)	.046 (.041-.051)	.082 (.072-.094)	.145 (.129-.161)	.213 (.182-.230)	1318
Females	11-12	*	.043 (<LOD-.049)	.074 (.068-.082)	.131 (.122-.149)	.182 (.166-.218)	1242
	13-14	.040 (.036-.044)	.036 (.030-.043)	.070 (.062-.078)	.122 (.105-.132)	.169 (.146-.200)	1346
Race/ethnicity							
Mexican Americans	11-12	.056 (.051-.062)	.053 (.044-.062)	.086 (.075-.091)	.134 (.110-.164)	.174 (.149-.261)	317
	13-14	.048 (.038-.060)	.047 (.033-.057)	.082 (.066-.106)	.172 (.109-.248)	.252 (.170-.432)	453
Non-Hispanic blacks	11-12	.070 (.063-.079)	.068 (.062-.074)	.110 (.096-.125)	.182 (.148-.229)	.254 (.200-.354)	669
	13-14	.065 (.056-.075)	.066 (.060-.070)	.111 (.097-.128)	.189 (.146-.225)	.245 (.218-.303)	581
Non-Hispanic whites	11-12	*	.044 (<LOD-.049)	.081 (.069-.095)	.143 (.118-.159)	.180 (.159-.231)	820
	13-14	.041 (.037-.045)	.037 (.032-.043)	.071 (.063-.079)	.118 (.104-.130)	.167 (.143-.184)	985
All Hispanics	11-12	*	.046 (<LOD-.053)	.079 (.066-.088)	.128 (.110-.149)	.174 (.149-.208)	573
	13-14	.047 (.040-.055)	.045 (.038-.052)	.079 (.069-.096)	.155 (.116-.218)	.231 (.178-.318)	701
Asians	11-12	*	< LOD	.066 (.054-.075)	.103 (.075-.145)	.145 (.100-.194)	353
	13-14	*	.027 (<LOD-.036)	.052 (.045-.061)	.080 (.065-.098)	.099 (.083-.169)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.041 and 0.022.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Antimony (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.124 (.108-.143)	.119 (.102-.143)	.185 (.164-.214)	.276 (.233-.333)	.385 (.333-.430)	2276
	01-02	.126 (.119-.134)	.120 (.115-.126)	.173 (.162-.188)	.267 (.242-.300)	.364 (.320-.414)	2689
	03-04	*	.080 (<LOD-.086)	.135 (.119-.143)	.208 (.192-.230)	.277 (.250-.294)	2558
	05-06	.072 (.068-.077)	.070 (.060-.070)	.100 (.100-.110)	.160 (.150-.190)	.230 (.190-.290)	2576
	07-08	.064 (.060-.068)	.060 (.060-.060)	.090 (.080-.100)	.140 (.140-.160)	.200 (.170-.230)	2627
	09-10	.060 (.056-.064)	.060 (.050-.060)	.090 (.080-.090)	.140 (.120-.160)	.200 (.180-.230)	2847
Age group							
6-11 years	99-00	.191 (.147-.248)	.185 (.156-.220)	.250 (.200-.417)	.447 (.271-.741)	.741 (.333-1.30)	316
	01-02	.178 (.159-.200)	.173 (.150-.193)	.228 (.200-.272)	.338 (.265-.480)	.471 (.313-.727)	368
	03-04	.116 (.103-.130)	.118 (.098-.136)	.167 (.146-.187)	.256 (.194-.317)	.333 (.250-.500)	290
	05-06	.092 (.081-.104)	.090 (.080-.110)	.130 (.110-.150)	.180 (.150-.210)	.220 (.180-.270)	355
	07-08	.089 (.079-.100)	.090 (.070-.100)	.120 (.110-.140)	.200 (.150-.240)	.300 (.200-.370)	394
	09-10	.094 (.084-.106)	.090 (.080-.100)	.140 (.120-.160)	.200 (.170-.250)	.280 (.220-.320)	378
12-19 years	99-00	.121 (.104-.140)	.120 (.095-.146)	.176 (.146-.207)	.259 (.206-.310)	.310 (.228-.421)	663
	01-02	.121 (.112-.131)	.115 (.106-.127)	.160 (.138-.186)	.224 (.199-.245)	.266 (.244-.310)	762
	03-04	.075 (.068-.082)	.068 (.061-.077)	.100 (.092-.113)	.156 (.126-.173)	.193 (.172-.255)	725
	05-06	.070 (.065-.076)	.070 (.060-.080)	.100 (.090-.110)	.140 (.120-.150)	.170 (.150-.250)	701
	07-08	.062 (.054-.070)	.060 (.050-.070)	.090 (.070-.100)	.120 (.100-.160)	.160 (.110-.240)	376
	09-10	.059 (.053-.066)	.060 (.050-.060)	.090 (.070-.100)	.130 (.110-.170)	.180 (.150-.220)	451
20 years and older	99-00	.118 (.104-.135)	.111 (.097-.135)	.175 (.149-.209)	.263 (.227-.320)	.352 (.320-.391)	1297
	01-02	.122 (.115-.129)	.115 (.108-.121)	.167 (.153-.181)	.265 (.241-.300)	.364 (.318-.405)	1559
	03-04	*	.079 (<LOD-.087)	.135 (.116-.145)	.209 (.195-.233)	.278 (.250-.294)	1543
	05-06	.070 (.066-.075)	.060 (.060-.070)	.100 (.090-.110)	.170 (.150-.190)	.250 (.190-.300)	1520
	07-08	.062 (.058-.066)	.060 (.050-.060)	.090 (.080-.100)	.140 (.130-.160)	.200 (.160-.240)	1857
	09-10	.057 (.053-.061)	.050 (.050-.060)	.080 (.080-.090)	.130 (.120-.140)	.190 (.160-.220)	2018
Gender							
Males	99-00	.112 (.099-.127)	.109 (.095-.127)	.164 (.146-.181)	.226 (.204-.268)	.320 (.235-.391)	1132
	01-02	.114 (.107-.123)	.108 (.103-.115)	.153 (.138-.171)	.228 (.205-.250)	.333 (.281-.438)	1334
	03-04	.080 (.076-.084)	.075 (.069-.081)	.122 (.111-.132)	.192 (.173-.209)	.253 (.230-.278)	1281
	05-06	.070 (.064-.077)	.060 (.060-.070)	.100 (.090-.120)	.160 (.130-.220)	.250 (.170-.310)	1271
	07-08	.061 (.057-.066)	.060 (.050-.060)	.090 (.080-.100)	.140 (.130-.160)	.210 (.160-.260)	1327
	09-10	.055 (.050-.060)	.050 (.050-.060)	.080 (.070-.100)	.130 (.120-.150)	.190 (.160-.210)	1397
Females	99-00	.137 (.117-.161)	.131 (.108-.164)	.213 (.176-.247)	.320 (.263-.417)	.429 (.357-.485)	1144
	01-02	.139 (.131-.148)	.132 (.124-.140)	.196 (.178-.211)	.295 (.267-.317)	.371 (.333-.444)	1355
	03-04	*	< LOD	.143 (.125-.161)	.225 (.188-.261)	.288 (.250-.333)	1277
	05-06	.074 (.070-.078)	.070 (.070-.070)	.110 (.100-.110)	.170 (.150-.190)	.220 (.180-.300)	1305
	07-08	.067 (.062-.071)	.060 (.060-.070)	.100 (.090-.100)	.140 (.130-.160)	.200 (.160-.230)	1300
	09-10	.064 (.060-.069)	.060 (.060-.070)	.090 (.090-.100)	.150 (.130-.170)	.220 (.180-.260)	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Antimony (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.120 (.107-.135)	.114 (.105-.129)	.167 (.148-.203)	.250 (.209-.315)	.333 (.280-.357)	787
	01-02	.138 (.128-.149)	.130 (.117-.143)	.182 (.159-.203)	.269 (.229-.308)	.338 (.308-.429)	682
	03-04	.086 (.076-.098)	.082 (<LOD-.092)	.129 (.107-.151)	.189 (.154-.238)	.238 (.185-.321)	618
	05-06	.087 (.076-.099)	.080 (.070-.080)	.120 (.110-.130)	.190 (.150-.310)	.370 (.200-.800)	652
	07-08	.069 (.059-.081)	.060 (.050-.080)	.100 (.080-.120)	.160 (.130-.180)	.200 (.160-.360)	515
	09-10	.066 (.063-.071)	.060 (.060-.060)	.100 (.080-.110)	.160 (.130-.190)	.240 (.190-.280)	613
Non-Hispanic blacks	99-00	.114 (.099-.133)	.112 (.098-.130)	.163 (.144-.183)	.236 (.195-.338)	.343 (.255-.425)	554
	01-02	.123 (.113-.134)	.115 (.106-.127)	.163 (.150-.181)	.233 (.208-.267)	.300 (.248-.373)	667
	03-04	.078 (.071-.085)	.074 (.069-.082)	.109 (.096-.124)	.170 (.148-.192)	.222 (.179-.257)	723
	05-06	.064 (.058-.071)	.060 (.050-.070)	.090 (.080-.090)	.130 (.120-.150)	.190 (.150-.220)	692
	07-08	.062 (.059-.066)	.060 (.050-.070)	.090 (.080-.090)	.140 (.120-.160)	.180 (.160-.220)	589
	09-10	.058 (.053-.063)	.060 (.050-.060)	.080 (.070-.090)	.130 (.110-.160)	.170 (.150-.190)	544
Non-Hispanic whites	99-00	.129 (.109-.152)	.125 (.102-.152)	.195 (.167-.225)	.298 (.239-.352)	.400 (.333-.444)	768
	01-02	.127 (.117-.138)	.120 (.113-.130)	.176 (.159-.198)	.280 (.241-.317)	.380 (.318-.471)	1132
	03-04	*	.081 (<LOD-.089)	.139 (.124-.147)	.217 (.200-.238)	.286 (.253-.333)	1074
	05-06	.072 (.068-.077)	.070 (.060-.070)	.110 (.100-.110)	.170 (.150-.190)	.230 (.190-.280)	1041
	07-08	.064 (.060-.069)	.060 (.050-.070)	.090 (.080-.100)	.140 (.140-.160)	.210 (.170-.230)	1095
	09-10	.060 (.055-.065)	.060 (.050-.060)	.090 (.080-.100)	.140 (.120-.170)	.200 (.170-.250)	1225

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Antimony (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.059 (.055-.063)	.092 (.085-.100)	.152 (.135-.171)	.223 (.181-.261)	2502
	13-14	.050 (.046-.055)	.047 (.044-.051)	.073 (.068-.079)	.114 (.103-.127)	.160 (.145-.172)	2663
Age group							
6-11 years	11-12	.091 (.081-.102)	.091 (.078-.100)	.130 (.116-.147)	.206 (.153-.283)	.308 (.218-.340)	398
	13-14	.077 (.068-.088)	.076 (.067-.084)	.114 (.098-.133)	.177 (.154-.193)	.225 (.191-.238)	402
12-19 years	11-12	.062 (.055-.069)	.058 (.051-.067)	.085 (.070-.106)	.147 (.115-.181)	.222 (.122-.373)	390
	13-14	.046 (.041-.053)	.047 (.039-.052)	.064 (.057-.071)	.103 (.084-.115)	.144 (.109-.172)	451
20 years and older	11-12	*	.056 (<LOD-.060)	.088 (.078-.097)	.145 (.127-.171)	.215 (.179-.240)	1714
	13-14	.049 (.044-.053)	.046 (.043-.049)	.070 (.064-.076)	.104 (.095-.115)	.151 (.130-.170)	1810
Gender							
Males	11-12	.054 (.050-.058)	.051 (.048-.057)	.078 (.071-.089)	.132 (.120-.151)	.186 (.161-.224)	1261
	13-14	.048 (.043-.053)	.045 (.040-.049)	.068 (.061-.076)	.114 (.099-.123)	.163 (.145-.177)	1317
Females	11-12	*	.066 (<LOD-.071)	.104 (.094-.112)	.165 (.145-.193)	.226 (.183-.303)	1241
	13-14	.053 (.048-.057)	.050 (.046-.055)	.077 (.071-.084)	.114 (.104-.133)	.156 (.145-.171)	1346
Race/ethnicity							
Mexican Americans	11-12	.063 (.059-.067)	.061 (.057-.064)	.089 (.079-.100)	.133 (.121-.153)	.183 (.150-.246)	317
	13-14	.055 (.046-.066)	.049 (.043-.057)	.076 (.063-.099)	.138 (.107-.172)	.196 (.137-.381)	453
Non-Hispanic blacks	11-12	.055 (.049-.060)	.052 (.047-.058)	.077 (.069-.088)	.121 (.104-.147)	.175 (.140-.232)	669
	13-14	.049 (.046-.053)	.048 (.044-.052)	.068 (.064-.073)	.110 (.095-.122)	.164 (.133-.221)	581
Non-Hispanic whites	11-12	*	.060 (<LOD-.067)	.097 (.088-.108)	.161 (.135-.183)	.224 (.181-.273)	818
	13-14	.050 (.044-.056)	.047 (.042-.053)	.075 (.068-.081)	.113 (.098-.127)	.156 (.133-.171)	984
All Hispanics	11-12	*	.058 (<LOD-.065)	.085 (.073-.097)	.132 (.113-.161)	.181 (.153-.214)	573
	13-14	.052 (.047-.059)	.047 (.043-.054)	.076 (.065-.089)	.137 (.107-.164)	.196 (.143-.326)	701
Asians	11-12	*	< LOD	.087 (.072-.107)	.153 (.132-.177)	.215 (.171-.290)	353
	13-14	*	.047 (<LOD-.050)	.067 (.060-.077)	.114 (.087-.145)	.160 (.133-.201)	292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Antimony_BiomonitoringSummary.html

Urinary Total Arsenic (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg /L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	8.30 (7.19-9.57)	7.70 (6.90-8.90)	16.0 (14.1-18.7)	37.4 (31.6-43.5)	65.4 (48.7-83.3)	2557
	05-06	9.29 (8.05-10.7)	8.65 (7.48-9.99)	17.1 (14.9-20.6)	41.1 (33.3-49.7)	66.7 (53.7-87.0)	2576
	07-08	8.10 (7.44-8.83)	7.49 (6.90-8.12)	14.9 (13.2-17.0)	33.3 (29.8-38.7)	50.8 (42.3-65.1)	2605
	09-10	9.28 (8.47-10.2)	8.15 (7.20-8.98)	18.0 (15.3-20.8)	44.6 (39.0-55.1)	85.6 (64.7-114)	2860
Age group							
6-11 years	03-04	7.08 (5.66-8.84)	6.80 (5.90-7.70)	10.9 (8.90-14.2)	24.6 (13.8-61.8)	46.9 (17.5-178)	290
	05-06	7.19 (5.81-8.90)	6.96 (5.32-8.88)	11.5 (9.19-16.0)	19.6 (13.1-51.5)	34.1 (19.6-58.5)	355
	07-08	6.85 (5.98-7.83)	6.40 (5.74-7.23)	10.8 (9.75-12.3)	22.5 (16.9-34.7)	41.0 (21.1-52.8)	390
	09-10	6.63 (5.74-7.66)	5.94 (5.14-7.19)	10.8 (9.37-12.5)	26.0 (18.2-33.4)	37.7 (27.8-65.6)	378
12-19 years	03-04	8.55 (7.34-9.97)	8.10 (6.80-9.40)	15.2 (12.2-17.8)	30.5 (23.1-40.4)	46.1 (32.9-62.5)	725
	05-06	8.19 (6.87-9.77)	7.92 (6.37-9.50)	14.0 (11.6-18.1)	28.2 (22.9-32.9)	41.9 (32.7-48.0)	701
	07-08	7.09 (6.17-8.14)	6.87 (5.88-7.86)	11.4 (9.41-13.7)	20.4 (16.1-26.6)	38.2 (21.6-53.3)	373
	09-10	6.45 (5.58-7.47)	6.11 (5.26-6.89)	10.8 (8.59-13.7)	25.9 (16.2-32.9)	38.8 (27.8-55.1)	454
20 years and older	03-04	8.41 (7.25-9.77)	7.90 (7.00-9.10)	17.0 (15.0-19.7)	40.5 (34.9-46.2)	66.2 (51.2-93.1)	1542
	05-06	9.76 (8.43-11.3)	9.12 (7.85-10.4)	18.9 (15.8-22.9)	44.2 (35.2-56.1)	71.4 (57.7-98.3)	1520
	07-08	8.43 (7.70-9.22)	7.94 (7.09-8.67)	16.2 (14.5-18.6)	35.2 (30.4-42.3)	59.0 (44.2-75.6)	1842
	09-10	10.2 (9.14-11.3)	8.75 (7.95-9.81)	20.4 (17.2-24.1)	52.1 (42.4-66.1)	93.1 (74.2-127)	2028
Gender							
Males	03-04	9.50 (8.34-10.8)	8.90 (7.70-9.80)	17.6 (15.2-20.1)	41.6 (32.5-52.8)	65.8 (48.7-95.4)	1281
	05-06	10.1 (8.61-11.8)	8.95 (8.05-10.0)	18.3 (15.5-22.9)	40.8 (31.0-52.6)	63.7 (46.4-78.7)	1271
	07-08	9.25 (8.28-10.3)	8.50 (7.37-9.53)	17.0 (14.6-19.4)	36.0 (32.1-44.2)	62.5 (44.3-84.6)	1318
	09-10	10.1 (9.06-11.3)	8.80 (7.80-9.75)	20.4 (16.1-23.9)	47.4 (42.1-64.1)	89.1 (71.6-114)	1401
Females	03-04	7.30 (6.02-8.84)	6.90 (5.90-8.30)	15.0 (11.3-19.5)	33.4 (26.5-41.7)	60.5 (40.8-77.1)	1276
	05-06	8.60 (7.38-10.0)	8.18 (6.64-9.97)	15.9 (13.7-19.9)	41.5 (32.2-53.7)	72.6 (54.8-122)	1305
	07-08	7.14 (6.51-7.82)	6.54 (6.09-7.14)	12.7 (11.6-14.4)	30.1 (26.0-34.0)	49.1 (40.1-57.5)	1287
	09-10	8.55 (7.44-9.83)	7.63 (6.45-8.62)	15.8 (13.1-19.9)	41.5 (31.7-55.5)	81.5 (54.3-132)	1459
Race/ethnicity							
Mexican Americans	03-04	9.29 (8.12-10.6)	9.20 (8.10-10.3)	16.2 (13.5-19.9)	34.4 (24.0-60.5)	68.2 (41.3-111)	618
	05-06	9.55 (8.54-10.7)	9.11 (7.99-10.3)	15.6 (14.0-17.1)	29.2 (21.4-56.8)	67.6 (41.7-81.4)	652
	07-08	8.98 (8.13-9.92)	8.84 (7.80-9.48)	15.4 (12.3-19.7)	35.2 (25.0-46.0)	53.0 (44.2-77.4)	510
	09-10	8.47 (7.30-9.84)	7.96 (6.87-9.08)	13.9 (11.3-17.7)	34.7 (25.0-53.2)	60.9 (49.3-78.7)	613
Non-Hispanic blacks	03-04	11.6 (9.50-14.1)	10.4 (7.90-11.8)	21.5 (14.9-34.4)	43.5 (36.2-61.8)	78.0 (43.6-141)	722
	05-06	11.0 (8.60-14.0)	9.55 (6.99-13.3)	21.9 (14.9-28.9)	44.9 (31.1-71.4)	82.3 (49.2-164)	692
	07-08	10.5 (9.40-11.7)	9.21 (8.22-10.4)	18.4 (16.1-21.5)	42.4 (32.9-52.8)	65.6 (45.5-112)	585
	09-10	10.9 (9.46-12.5)	9.26 (7.70-11.4)	21.7 (17.6-24.2)	49.1 (32.2-81.7)	84.8 (51.3-174)	546
Non-Hispanic whites	03-04	7.12 (6.13-8.27)	7.00 (6.10-7.90)	13.7 (11.3-15.8)	29.0 (22.6-35.9)	53.1 (38.4-65.6)	1074
	05-06	8.66 (7.20-10.4)	8.05 (6.52-9.66)	16.3 (13.4-20.6)	40.8 (29.4-50.2)	58.5 (46.0-88.0)	1041
	07-08	6.98 (6.31-7.71)	6.46 (5.93-7.29)	12.4 (11.3-14.3)	28.3 (21.6-32.6)	42.1 (32.3-50.0)	1088
	09-10	8.18 (7.46-8.96)	7.24 (6.46-8.21)	14.8 (12.7-17.4)	38.9 (31.7-44.4)	66.3 (49.3-88.7)	1224

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.74, 0.74, 0.74, and 0.74 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Total Arsenic (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.85 (5.85-8.02)	6.09 (5.22-7.12)	13.0 (10.9-16.6)	32.0 (25.9-39.0)	52.5 (41.9-66.2)	2504
	13-14	6.29 (5.58-7.08)	5.82 (5.10-6.69)	11.7 (10.5-13.2)	26.6 (23.7-30.1)	46.0 (37.5-56.1)	2662
Age group							
6-11 years	11-12	6.02 (5.03-7.19)	5.50 (4.58-6.56)	10.5 (7.93-14.1)	30.1 (16.7-46.5)	53.0 (37.5-70.3)	399
	13-14	5.21 (4.57-5.95)	4.78 (4.27-5.57)	8.79 (7.52-10.3)	17.1 (12.4-25.3)	29.0 (17.9-47.7)	402
12-19 years	11-12	6.01 (4.45-8.11)	5.26 (3.95-7.47)	10.9 (7.74-16.9)	25.9 (16.6-44.0)	44.0 (25.9-153)	390
	13-14	5.79 (4.96-6.75)	5.33 (4.83-5.91)	9.40 (8.44-11.8)	22.0 (17.4-28.1)	44.1 (27.0-90.8)	451
20 years and older	11-12	7.09 (6.03-8.33)	6.31 (5.32-7.45)	13.6 (11.3-18.3)	33.2 (26.7-39.5)	52.5 (41.9-77.3)	1715
	13-14	6.49 (5.72-7.36)	6.12 (5.22-7.06)	12.1 (10.9-14.2)	27.9 (24.1-32.1)	48.0 (37.5-57.5)	1809
Gender							
Males	11-12	7.69 (6.35-9.31)	6.84 (5.33-8.59)	15.4 (11.7-19.7)	33.5 (27.7-41.9)	56.5 (42.2-78.0)	1262
	13-14	6.67 (5.97-7.46)	6.37 (5.68-7.12)	11.7 (10.8-13.0)	27.0 (22.3-32.5)	48.5 (33.3-57.5)	1316
Females	11-12	6.14 (5.22-7.22)	5.42 (4.79-6.25)	11.6 (9.85-13.7)	29.0 (22.5-38.2)	50.6 (37.5-79.8)	1242
	13-14	5.94 (5.18-6.80)	5.38 (4.68-6.28)	11.2 (9.49-13.7)	26.0 (21.8-31.1)	43.6 (36.0-55.8)	1346
Race/ethnicity							
Mexican Americans	11-12	7.12 (5.73-8.84)	6.94 (5.34-8.70)	12.2 (9.84-16.5)	24.2 (18.4-35.7)	44.0 (23.8-70.3)	317
	13-14	5.73 (5.01-6.56)	5.64 (4.93-6.47)	9.19 (8.10-10.2)	17.5 (11.2-36.6)	36.6 (15.4-73.0)	453
Non-Hispanic blacks	11-12	9.31 (7.19-12.0)	8.18 (6.16-10.8)	17.9 (13.1-25.3)	46.8 (28.8-76.5)	82.1 (53.1-107)	669
	13-14	8.17 (6.87-9.72)	6.99 (6.01-8.20)	14.9 (10.9-18.2)	30.7 (25.5-38.2)	59.8 (40.0-79.0)	579
Non-Hispanic whites	11-12	5.89 (4.92-7.06)	5.08 (4.56-6.06)	10.8 (8.48-15.5)	26.3 (20.3-34.9)	43.2 (34.9-56.0)	820
	13-14	5.67 (4.88-6.59)	5.30 (4.40-6.62)	11.0 (9.16-12.7)	22.4 (17.6-29.9)	39.0 (30.8-50.6)	985
All Hispanics	11-12	7.62 (6.63-8.76)	7.32 (6.31-8.35)	13.7 (11.7-16.6)	25.8 (21.2-29.8)	45.6 (28.7-55.8)	573
	13-14	6.16 (5.24-7.22)	5.93 (5.02-6.82)	10.4 (9.11-11.9)	20.2 (14.2-30.1)	37.5 (24.1-57.9)	701
Asians	11-12	16.7 (14.7-18.9)	14.9 (12.8-19.0)	39.0 (33.2-44.8)	83.2 (61.4-108)	117 (88.4-145)	353
	13-14	12.1 (10.4-14.1)	11.5 (9.08-13.6)	30.8 (23.2-37.0)	70.7 (52.5-90.8)	126 (79.2-181)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.25 and 0.26.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Total Arsenic (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg /g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	8.24 (7.07-9.59)	7.04 (5.93-8.51)	14.1 (11.6-17.2)	30.4 (26.0-38.7)	50.4 (40.3-64.5)	2557
	05-06	9.15 (7.93-10.6)	7.70 (6.55-8.98)	15.2 (11.7-19.4)	35.1 (26.5-44.7)	62.8 (44.7-85.0)	2576
	07-08	8.46 (7.78-9.21)	7.06 (6.56-7.74)	13.8 (12.5-15.2)	28.9 (24.2-36.7)	49.0 (38.8-70.5)	2605
	09-10	9.90 (9.06-10.8)	7.90 (6.98-8.97)	17.6 (15.4-20.2)	45.2 (36.6-53.3)	80.8 (60.5-94.4)	2860
Age group							
6-11 years	03-04	8.25 (6.58-10.3)	7.18 (5.93-9.45)	11.7 (9.10-16.3)	22.2 (12.0-69.5)	40.1 (14.7-188)	290
	05-06	8.88 (7.05-11.2)	7.87 (6.19-9.42)	11.8 (9.32-18.9)	24.5 (13.0-62.8)	45.4 (22.9-80.9)	355
	07-08	8.87 (8.06-9.77)	7.53 (6.73-7.88)	13.4 (10.2-16.0)	26.7 (19.9-34.0)	37.2 (28.6-71.4)	390
	09-10	8.97 (7.93-10.2)	7.42 (6.70-8.32)	11.0 (9.90-14.0)	33.5 (17.0-54.6)	60.8 (36.6-84.9)	378
12-19 years	03-04	6.11 (5.23-7.13)	5.06 (4.47-6.04)	9.66 (7.44-11.2)	17.8 (12.0-26.0)	27.8 (20.7-35.9)	725
	05-06	6.30 (5.56-7.14)	5.19 (4.80-6.19)	9.62 (8.12-11.1)	19.4 (13.9-25.8)	28.0 (21.9-33.2)	701
	07-08	5.50 (4.91-6.16)	4.96 (4.25-5.40)	7.69 (6.09-9.31)	16.8 (10.8-21.1)	22.5 (16.8-29.1)	373
	09-10	6.06 (5.34-6.87)	4.95 (4.39-5.81)	9.18 (7.00-11.0)	19.2 (14.5-21.3)	28.4 (20.8-35.7)	454
20 years and older	03-04	8.64 (7.38-10.1)	7.47 (6.20-9.01)	15.4 (12.7-18.8)	33.8 (27.3-41.2)	53.9 (45.4-64.5)	1542
	05-06	9.75 (8.46-11.2)	8.22 (6.98-9.75)	17.0 (12.8-21.3)	41.0 (29.6-52.5)	68.4 (52.8-89.7)	1520
	07-08	9.00 (8.20-9.88)	7.55 (6.79-8.53)	14.9 (13.1-17.1)	32.5 (25.8-41.0)	59.4 (41.0-86.2)	1842
	09-10	10.8 (9.71-12.0)	8.73 (7.69-9.71)	20.1 (16.5-24.2)	50.8 (40.5-59.7)	87.3 (70.0-105)	2028
Gender							
Males	03-04	8.00 (6.81-9.40)	6.75 (5.66-8.35)	13.7 (11.0-18.0)	28.7 (25.1-36.4)	45.6 (35.3-62.1)	1281
	05-06	8.26 (7.09-9.63)	7.16 (5.87-8.54)	12.9 (10.2-18.0)	28.8 (22.9-36.3)	46.1 (35.1-66.5)	1271
	07-08	8.30 (7.49-9.18)	6.79 (6.39-7.61)	13.2 (11.8-15.2)	28.9 (23.5-38.5)	47.7 (35.7-68.1)	1318
	09-10	9.21 (8.55-9.93)	7.22 (6.43-8.67)	17.0 (14.9-18.6)	41.8 (35.4-47.9)	66.9 (52.0-81.5)	1401
Females	03-04	8.47 (7.12-10.1)	7.33 (6.10-8.75)	14.4 (11.7-17.7)	32.3 (24.2-46.6)	58.4 (42.8-75.0)	1276
	05-06	10.1 (8.72-11.7)	8.29 (7.23-9.87)	17.4 (13.0-21.4)	43.8 (29.2-61.5)	74.1 (55.0-96.2)	1305
	07-08	8.63 (7.91-9.41)	7.13 (6.53-8.33)	14.1 (12.3-16.9)	27.9 (24.1-37.0)	51.4 (39.7-83.3)	1287
	09-10	10.6 (9.36-12.0)	8.38 (7.40-9.41)	18.6 (14.9-23.9)	50.8 (35.1-72.9)	87.8 (66.8-109)	1459
Race/ethnicity							
Mexican Americans	03-04	8.61 (7.33-10.1)	7.76 (6.30-9.44)	12.6 (10.2-15.9)	24.0 (17.7-34.8)	42.4 (24.8-62.4)	618
	05-06	8.98 (7.89-10.2)	7.48 (6.72-8.87)	12.8 (11.0-16.3)	28.1 (21.1-35.5)	49.1 (31.0-108)	652
	07-08	8.88 (7.71-10.2)	7.38 (6.51-8.63)	14.1 (10.6-17.8)	28.6 (22.5-35.3)	48.2 (31.1-75.7)	510
	09-10	8.88 (7.87-10.0)	7.62 (6.69-8.45)	13.2 (10.7-17.2)	31.4 (23.7-38.5)	49.8 (37.5-68.9)	613
Non-Hispanic blacks	03-04	8.31 (6.99-9.88)	6.88 (5.66-8.41)	13.8 (11.5-17.0)	27.6 (17.9-56.0)	54.3 (27.5-120)	722
	05-06	7.96 (6.40-9.92)	6.48 (5.21-8.30)	13.4 (10.0-18.6)	32.5 (18.7-66.5)	71.4 (35.6-98.8)	692
	07-08	7.72 (6.98-8.54)	6.60 (6.01-7.56)	13.4 (11.5-15.4)	25.7 (22.1-30.0)	42.7 (31.4-60.3)	585
	09-10	8.67 (7.54-9.98)	7.26 (5.96-9.02)	15.6 (12.4-21.3)	38.7 (31.5-48.7)	63.9 (43.1-102)	546
Non-Hispanic whites	03-04	7.50 (6.25-9.01)	6.32 (5.28-7.96)	12.5 (9.86-17.1)	26.8 (21.8-32.0)	40.0 (31.3-53.9)	1074
	05-06	9.01 (7.57-10.7)	7.68 (6.18-9.56)	14.3 (11.1-20.8)	31.9 (24.1-46.1)	59.4 (37.9-96.2)	1041
	07-08	7.82 (7.05-8.68)	6.72 (6.00-7.54)	12.5 (11.1-13.9)	24.6 (19.6-32.3)	43.1 (29.1-64.0)	1088
	09-10	9.14 (8.35-10.0)	7.10 (6.43-8.06)	15.8 (13.7-18.4)	40.9 (30.4-50.8)	66.4 (50.9-90.0)	1224

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Total Arsenic (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	7.77 (6.85-8.81)	6.39 (5.57-7.24)	13.7 (11.5-16.5)	30.8 (24.6-38.6)	50.4 (38.2-70.1)	2502
	13-14	7.27 (6.62-7.99)	6.10 (5.39-6.88)	11.9 (10.5-13.5)	27.6 (23.8-32.8)	52.0 (43.5-60.9)	2661
Age group							
6-11 years	11-12	8.63 (7.26-10.3)	6.87 (5.84-8.00)	12.3 (9.58-15.5)	27.7 (17.7-57.7)	91.2 (26.2-129)	398
	13-14	7.78 (7.08-8.54)	6.91 (5.91-7.65)	12.5 (10.3-13.6)	17.7 (16.1-21.1)	29.9 (20.4-52.1)	402
12-19 years	11-12	5.75 (4.49-7.36)	4.69 (3.70-5.73)	8.73 (6.26-13.3)	22.1 (11.5-52.6)	34.9 (21.1-159)	390
	13-14	5.24 (4.53-6.06)	4.21 (3.61-4.61)	7.92 (5.75-10.3)	17.6 (12.6-23.0)	30.5 (20.3-54.1)	451
20 years and older	11-12	8.04 (7.07-9.14)	6.52 (5.88-7.69)	14.8 (12.1-18.8)	32.4 (25.2-39.8)	49.7 (38.2-70.1)	1714
	13-14	7.58 (6.87-8.36)	6.39 (5.66-7.29)	12.4 (10.9-14.7)	31.0 (26.0-37.9)	54.0 (47.9-66.1)	1808
Gender							
Males	11-12	7.20 (6.15-8.43)	6.13 (5.18-7.23)	12.5 (10.5-15.2)	28.3 (20.2-34.9)	50.4 (33.3-69.6)	1261
	13-14	6.69 (6.07-7.38)	5.55 (4.96-6.26)	10.9 (9.50-12.5)	26.0 (19.5-30.6)	47.9 (36.5-55.3)	1315
Females	11-12	8.35 (7.40-9.42)	6.64 (6.12-7.37)	15.0 (12.2-19.1)	33.1 (26.1-41.4)	50.7 (39.8-79.0)	1241
	13-14	7.88 (7.03-8.82)	6.67 (5.82-7.78)	13.1 (10.9-15.6)	31.3 (24.9-39.4)	54.1 (46.3-68.3)	1346
Race/ethnicity							
Mexican Americans	11-12	8.00 (6.85-9.36)	6.91 (6.07-7.98)	11.9 (9.05-14.6)	26.1 (16.7-39.4)	40.8 (24.0-70.1)	317
	13-14	6.54 (5.70-7.51)	5.83 (5.08-6.54)	8.97 (7.32-11.6)	17.1 (12.6-20.8)	29.2 (15.1-72.2)	453
Non-Hispanic blacks	11-12	7.24 (5.51-9.51)	5.83 (4.65-7.96)	13.5 (9.02-19.0)	28.8 (21.5-46.3)	55.4 (31.6-87.1)	669
	13-14	6.23 (5.25-7.39)	4.86 (4.24-6.22)	10.3 (8.03-13.4)	22.7 (17.8-29.1)	37.4 (25.8-70.5)	579
Non-Hispanic whites	11-12	7.13 (6.05-8.39)	5.72 (5.05-6.70)	12.4 (10.3-15.4)	28.4 (21.7-37.5)	46.5 (33.1-75.8)	818
	13-14	7.01 (6.25-7.87)	5.87 (5.13-6.88)	11.6 (9.92-13.7)	27.5 (21.6-35.8)	49.5 (40.8-55.3)	984
All Hispanics	11-12	8.53 (7.74-9.40)	7.60 (6.84-8.42)	12.8 (11.2-14.1)	25.3 (20.8-30.8)	37.5 (28.2-50.6)	573
	13-14	6.87 (6.08-7.76)	6.26 (5.36-6.89)	10.3 (8.75-11.9)	18.7 (14.3-24.0)	28.7 (18.9-50.7)	701
Asians	11-12	22.3 (19.1-26.1)	20.1 (16.3-25.2)	39.4 (32.2-61.0)	100 (73.2-129)	162 (114-202)	353
	13-14	19.0 (16.1-22.5)	15.2 (13.0-19.2)	41.9 (31.1-59.2)	95.0 (74.2-131)	137 (111-229)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Inorganic-related Arsenic Species (2003 – 2010) Sum of arsenic acid, arsenous acid, dimethylarsinic acid, and monomethylarsonic acid**

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	6.52 (6.03-7.04)	6.10 (5.50-6.40)	8.60 (8.00-9.50)	14.0 (12.5-15.4)	19.1 (15.8-22.9)	2572
	05-06	6.84 (6.35-7.38)	6.40 (5.88-6.85)	9.00 (8.19-10.0)	13.9 (12.0-16.5)	18.5 (15.8-21.7)	2588
	07-08	6.47 (6.20-6.76)	6.02 (5.74-6.26)	8.55 (8.03-9.22)	12.9 (11.8-14.0)	16.8 (14.7-18.9)	2576
	09-10	6.56 (6.23-6.90)	5.87 (5.57-6.09)	8.80 (8.14-9.47)	14.6 (12.3-17.2)	20.8 (17.8-24.5)	2852
Age group							
6-11 years	03-04	6.46 (5.67-7.35)	6.10 (5.80-6.90)	8.50 (7.10-10.0)	12.1 (10.0-14.7)	15.0 (10.7-26.3)	292
	05-06	6.71 (6.13-7.35)	6.27 (5.44-6.98)	8.46 (7.48-9.72)	13.5 (9.72-16.1)	16.1 (14.0-18.3)	354
	07-08	6.70 (6.15-7.31)	6.08 (5.77-6.44)	8.78 (7.72-10.3)	13.9 (10.9-16.5)	18.3 (12.2-42.3)	390
	09-10	6.29 (5.85-6.75)	5.80 (5.11-6.32)	8.34 (7.67-9.07)	13.2 (10.7-14.6)	16.0 (14.0-17.9)	379
12-19 years	03-04	6.72 (6.08-7.42)	6.10 (5.90-7.00)	8.80 (7.70-10.4)	13.1 (10.6-16.6)	16.7 (14.5-20.3)	729
	05-06	6.82 (6.18-7.53)	6.38 (5.67-7.45)	8.78 (7.77-10.4)	13.1 (10.9-15.4)	16.4 (13.3-17.7)	703
	07-08	6.42 (5.89-6.99)	6.34 (5.60-6.95)	8.15 (7.33-9.69)	11.8 (10.5-13.4)	14.6 (12.0-18.1)	366
	09-10	5.84 (5.43-6.27)	5.31 (4.89-5.85)	7.67 (6.79-8.60)	11.4 (9.66-13.1)	13.9 (11.8-17.0)	453
20 years and older	03-04	6.49 (6.02-7.00)	6.00 (5.30-6.20)	8.60 (8.10-9.40)	14.1 (12.7-15.6)	19.5 (16.8-24.9)	1550
	05-06	6.86 (6.34-7.42)	6.43 (5.83-6.87)	9.10 (8.22-10.2)	14.1 (12.0-17.3)	19.9 (15.8-24.0)	1531
	07-08	6.46 (6.17-6.76)	5.95 (5.71-6.18)	8.57 (8.00-9.40)	13.0 (11.8-14.2)	17.2 (15.0-19.2)	1820
	09-10	6.70 (6.33-7.10)	5.95 (5.71-6.20)	9.12 (8.20-9.87)	15.4 (12.6-19.6)	23.2 (19.4-27.4)	2020
Gender							
Males	03-04	7.03 (6.38-7.74)	6.40 (6.00-7.10)	9.20 (8.30-10.5)	14.8 (12.7-18.1)	21.3 (16.0-28.1)	1283
	05-06	7.10 (6.56-7.68)	6.59 (6.10-7.05)	9.37 (8.22-10.5)	14.3 (11.6-17.7)	18.4 (14.9-23.1)	1276
	07-08	6.94 (6.54-7.36)	6.44 (6.13-6.87)	9.22 (8.53-9.89)	13.5 (12.4-15.2)	18.3 (14.9-26.4)	1289
	09-10	6.80 (6.30-7.34)	6.09 (5.71-6.54)	9.06 (8.27-9.89)	15.0 (12.0-20.4)	23.5 (16.3-29.4)	1396
Females	03-04	6.08 (5.62-6.57)	5.50 (5.10-6.10)	8.10 (7.10-9.10)	12.7 (11.1-14.9)	17.3 (14.6-21.9)	1289
	05-06	6.60 (6.11-7.14)	6.14 (5.47-6.81)	8.77 (8.06-9.51)	13.3 (11.7-16.2)	18.6 (15.8-22.0)	1312
	07-08	6.06 (5.81-6.33)	5.66 (5.42-5.84)	7.96 (7.35-8.59)	11.9 (10.7-13.7)	15.8 (14.0-16.8)	1287
	09-10	6.33 (5.98-6.70)	5.64 (5.21-5.95)	8.36 (7.70-9.60)	14.2 (12.1-16.2)	19.6 (17.8-21.1)	1456
Race/ethnicity							
Mexican Americans	03-04	7.72 (7.09-8.41)	7.10 (6.50-8.00)	10.1 (9.10-11.8)	15.5 (12.8-20.5)	22.7 (16.5-29.4)	622
	05-06	7.27 (6.94-7.62)	7.05 (6.69-7.42)	9.83 (9.21-10.5)	12.5 (11.7-14.5)	16.1 (13.9-18.5)	651
	07-08	7.22 (6.80-7.66)	7.02 (6.43-7.46)	9.89 (9.18-10.3)	12.7 (11.3-14.3)	15.3 (13.6-23.3)	513
	09-10	6.76 (6.19-7.38)	6.31 (5.48-7.19)	9.12 (8.06-10.3)	14.1 (11.9-16.5)	19.8 (15.8-22.2)	618
Non-Hispanic blacks	03-04	7.04 (6.42-7.73)	6.50 (6.10-7.30)	9.30 (8.70-10.3)	15.7 (12.3-18.1)	19.4 (17.1-21.4)	725
	05-06	7.05 (6.36-7.82)	6.48 (5.73-7.16)	8.85 (7.77-9.80)	14.0 (11.0-16.5)	17.9 (14.5-31.0)	695
	07-08	7.06 (6.76-7.38)	6.45 (6.00-6.81)	9.43 (8.55-10.3)	14.5 (13.3-15.8)	18.5 (15.8-23.5)	586
	09-10	7.03 (6.44-7.67)	6.28 (5.66-6.92)	9.84 (8.48-11.4)	16.0 (12.7-19.9)	22.2 (17.8-33.5)	543
Non-Hispanic whites	03-04	5.96 (5.54-6.41)	5.50 (5.10-6.10)	7.70 (7.10-8.50)	12.0 (9.80-13.7)	15.1 (12.8-18.1)	1081
	05-06	6.55 (5.96-7.20)	6.10 (5.42-6.83)	8.50 (7.74-9.73)	13.3 (11.1-16.2)	17.3 (14.1-21.4)	1050
	07-08	5.95 (5.69-6.23)	5.66 (5.35-5.96)	7.72 (7.26-8.25)	11.1 (10.3-12.2)	14.0 (12.5-16.1)	1063
	09-10	5.96 (5.75-6.18)	5.46 (5.22-5.65)	7.89 (7.56-8.19)	11.5 (10.1-13.3)	15.3 (13.3-18.8)	1210

**See Calculation of Inorganic-related Arsenic Species for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Inorganic-related Arsenic Species (2011 – 2014) Sum of arsenic acid, arsenous acid, dimethylarsenic acid, and methylarsonic acid**

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.59 (5.24-5.96)	5.15 (4.73-5.56)	7.73 (7.09-8.57)	12.2 (11.1-13.9)	17.2 (14.6-19.9)	2517
	13-14	4.80 (4.53-5.09)	4.53 (4.18-4.94)	7.22 (6.74-7.70)	11.2 (10.3-12.0)	14.7 (13.5-16.8)	2654
Age group							
6-11 years	11-12	5.48 (5.05-5.95)	5.36 (4.50-5.98)	7.58 (7.08-8.34)	11.2 (9.93-12.1)	13.4 (11.6-16.2)	401
	13-14	4.91 (4.44-5.43)	4.59 (4.02-5.00)	7.21 (6.20-8.38)	11.3 (9.91-13.9)	14.2 (11.4-19.6)	397
12-19 years	11-12	5.37 (4.67-6.17)	5.09 (4.24-6.00)	7.28 (6.27-8.32)	11.1 (8.34-14.9)	15.6 (10.8-23.9)	392
	13-14	5.09 (4.64-5.57)	5.02 (4.51-5.46)	7.29 (6.53-8.08)	11.9 (9.80-13.7)	14.5 (12.5-15.9)	450
20 years and older	11-12	5.64 (5.28-6.01)	5.15 (4.71-5.57)	7.83 (7.07-8.88)	12.5 (11.2-14.8)	17.6 (15.2-20.0)	1724
	13-14	4.75 (4.46-5.05)	4.45 (4.08-4.91)	7.20 (6.63-7.72)	11.2 (10.3-11.8)	14.8 (12.9-17.1)	1807
Gender							
Males	11-12	6.00 (5.52-6.52)	5.63 (5.11-6.28)	8.31 (7.29-9.94)	13.4 (11.7-16.5)	18.8 (16.7-20.8)	1264
	13-14	5.02 (4.78-5.28)	4.92 (4.45-5.32)	7.45 (7.09-7.94)	11.4 (10.3-12.1)	14.8 (13.5-16.1)	1308
Females	11-12	5.23 (4.90-5.58)	4.70 (4.36-5.05)	7.16 (6.47-8.01)	11.6 (10.1-12.9)	14.9 (12.3-20.5)	1253
	13-14	4.59 (4.26-4.96)	4.29 (3.87-4.69)	6.94 (5.99-7.67)	10.8 (10.0-12.1)	14.7 (12.8-18.3)	1346
Race/ethnicity							
Mexican Americans	11-12	5.76 (5.37-6.18)	5.26 (5.02-5.77)	7.71 (7.37-8.54)	11.9 (10.1-13.8)	16.8 (12.1-19.9)	317
	13-14	5.01 (4.77-5.27)	5.14 (4.62-5.52)	7.21 (6.84-7.70)	10.3 (9.54-11.3)	12.4 (11.2-16.2)	455
Non-Hispanic blacks	11-12	6.20 (5.52-6.97)	5.77 (5.09-6.42)	8.81 (7.43-10.6)	14.4 (12.1-18.0)	20.5 (16.5-25.4)	672
	13-14	5.58 (5.03-6.20)	5.28 (4.84-5.81)	7.81 (6.82-9.63)	13.4 (10.6-15.7)	19.2 (13.5-25.0)	576
Non-Hispanic whites	11-12	5.10 (4.79-5.43)	4.69 (4.35-5.11)	7.01 (6.36-7.72)	10.7 (8.90-12.1)	12.9 (11.9-16.0)	825
	13-14	4.35 (4.02-4.71)	4.12 (3.67-4.47)	6.46 (5.79-7.21)	9.95 (8.65-10.9)	12.3 (10.9-14.0)	980
All Hispanics	11-12	6.22 (5.52-7.01)	5.72 (5.08-6.51)	8.97 (7.41-11.1)	14.5 (11.4-19.0)	19.9 (15.8-21.6)	574
	13-14	5.31 (4.87-5.80)	5.34 (4.64-6.01)	7.92 (7.18-8.84)	11.7 (10.5-12.9)	14.8 (12.4-16.2)	703
Asians	11-12	10.1 (9.11-11.2)	9.53 (8.32-11.1)	17.8 (14.6-19.9)	29.6 (24.5-34.2)	42.3 (33.0-46.4)	356
	13-14	7.60 (7.10-8.14)	7.69 (6.65-8.90)	13.8 (11.0-14.9)	23.0 (18.3-24.3)	28.0 (23.1-39.4)	291

**See Calculation of Inorganic-related Arsenic Species for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Inorganic-related Arsenic Species (creatinine corrected) (2003 – 2010) Sum of arsenic acid, arsenous acid, dimethylarsinic acid, and monomethylarsonic acid**

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	6.47 (5.84-7.16)	5.95 (5.40-6.62)	9.64 (8.25-11.4)	15.7 (13.3-18.5)	20.0 (17.4-23.9)	2569
	05-06	6.72 (6.30-7.17)	6.21 (5.81-6.58)	9.75 (8.81-11.0)	16.2 (14.2-18.0)	21.3 (18.7-24.3)	2588
	07-08	6.75 (6.41-7.12)	6.42 (5.97-6.88)	9.77 (9.03-10.6)	15.5 (14.2-17.0)	21.2 (18.1-23.3)	2576
	09-10	6.94 (6.55-7.36)	6.55 (6.04-7.00)	10.3 (9.58-11.0)	16.4 (14.9-17.9)	22.5 (19.0-26.5)	2851
Age group							
6-11 years	03-04	7.52 (6.45-8.77)	6.51 (6.05-8.30)	10.5 (8.06-13.5)	16.8 (12.4-19.7)	19.2 (14.3-41.3)	292
	05-06	8.28 (7.20-9.52)	7.73 (6.44-8.96)	10.7 (8.86-14.1)	17.4 (13.6-22.1)	24.0 (18.8-26.2)	354
	07-08	8.81 (7.92-9.80)	8.09 (7.23-9.44)	12.1 (10.8-13.9)	18.3 (15.5-23.4)	24.5 (18.4-37.9)	390
	09-10	8.47 (7.76-9.25)	7.92 (7.20-8.73)	10.7 (9.71-12.6)	17.0 (13.8-22.3)	24.9 (14.8-42.2)	378
12-19 years	03-04	4.79 (4.33-5.29)	4.46 (3.98-5.00)	6.31 (5.46-7.44)	8.96 (8.17-11.4)	12.8 (10.2-15.7)	728
	05-06	5.24 (4.95-5.55)	4.97 (4.61-5.44)	7.23 (6.71-7.72)	10.7 (9.48-11.6)	13.3 (11.5-15.5)	703
	07-08	5.00 (4.64-5.39)	4.72 (4.47-5.13)	6.68 (5.85-7.49)	9.85 (7.88-11.8)	12.1 (10.2-14.8)	366
	09-10	5.44 (4.97-5.95)	4.83 (4.46-5.50)	8.10 (6.54-9.23)	12.1 (10.4-15.1)	16.6 (13.6-20.5)	453
20 years and older	03-04	6.67 (6.00-7.41)	6.12 (5.54-7.03)	10.2 (8.51-12.0)	15.9 (13.8-19.2)	21.2 (18.2-25.5)	1548
	05-06	6.82 (6.39-7.28)	6.27 (5.80-6.79)	10.3 (9.07-11.5)	16.7 (14.5-18.9)	22.2 (19.3-25.9)	1531
	07-08	6.87 (6.48-7.29)	6.54 (6.14-7.08)	9.90 (9.10-11.1)	16.2 (14.2-18.0)	21.3 (18.2-24.3)	1820
	09-10	7.06 (6.61-7.53)	6.67 (6.13-7.09)	10.6 (9.71-11.4)	17.0 (15.0-18.9)	23.3 (19.5-27.5)	2020
Gender							
Males	03-04	5.93 (5.19-6.78)	5.43 (4.73-6.14)	8.57 (7.19-10.7)	13.7 (11.4-17.4)	19.4 (14.7-25.6)	1283
	05-06	5.83 (5.41-6.28)	5.43 (5.00-5.90)	8.27 (7.26-9.46)	12.9 (11.3-15.5)	18.0 (14.2-20.4)	1276
	07-08	6.21 (5.91-6.53)	5.89 (5.47-6.27)	8.87 (8.27-9.71)	14.3 (12.7-16.6)	18.9 (17.0-21.3)	1289
	09-10	6.17 (5.82-6.54)	5.70 (5.34-6.30)	8.95 (8.40-9.46)	14.3 (12.5-15.8)	18.1 (16.0-22.0)	1395
Females	03-04	7.02 (6.45-7.64)	6.59 (5.94-7.20)	10.5 (8.95-12.4)	16.8 (14.9-19.1)	20.6 (18.0-25.4)	1285
	05-06	7.70 (7.22-8.21)	7.11 (6.54-7.73)	11.4 (10.3-13.1)	17.9 (16.2-20.0)	25.7 (22.1-28.5)	1312
	07-08	7.30 (6.85-7.77)	7.00 (6.44-7.48)	10.4 (9.59-11.5)	16.2 (13.7-20.1)	22.7 (18.9-28.3)	1287
	09-10	7.77 (7.27-8.31)	7.29 (6.80-7.91)	11.7 (10.9-12.5)	18.9 (16.3-22.0)	26.5 (20.4-34.0)	1456
Race/ethnicity							
Mexican Americans	03-04	7.16 (6.29-8.15)	6.78 (5.58-8.01)	10.4 (8.19-12.7)	15.6 (13.3-18.9)	20.0 (16.1-29.9)	621
	05-06	6.83 (6.38-7.32)	6.55 (5.94-7.34)	9.40 (8.51-10.6)	13.6 (11.6-15.9)	16.2 (14.3-20.0)	651
	07-08	7.19 (6.39-8.10)	7.07 (6.17-7.76)	9.73 (8.28-11.4)	15.4 (12.9-19.2)	21.3 (17.8-24.3)	513
	09-10	7.04 (6.44-7.69)	6.92 (6.15-7.70)	10.3 (9.19-10.9)	14.7 (13.3-16.2)	18.9 (16.9-20.6)	618
Non-Hispanic blacks	03-04	5.08 (4.63-5.56)	4.72 (4.34-5.25)	7.04 (6.23-8.00)	10.7 (8.71-14.3)	15.0 (11.4-19.1)	725
	05-06	5.08 (4.63-5.57)	4.73 (4.33-5.21)	6.82 (6.13-7.61)	10.6 (8.32-13.5)	15.1 (11.2-25.0)	695
	07-08	5.19 (4.86-5.55)	4.79 (4.41-5.39)	7.28 (6.97-7.97)	11.2 (10.2-12.2)	14.7 (12.2-18.9)	586
	09-10	5.58 (5.10-6.10)	5.01 (4.58-5.42)	8.50 (6.94-10.4)	13.6 (12.6-15.5)	19.0 (14.6-23.1)	542
Non-Hispanic whites	03-04	6.28 (5.55-7.10)	5.82 (5.19-6.53)	9.10 (7.74-11.4)	14.8 (11.4-18.8)	19.4 (15.8-23.6)	1079
	05-06	6.78 (6.30-7.31)	6.26 (5.79-6.78)	10.2 (8.85-11.4)	16.2 (13.8-18.2)	20.8 (17.9-24.6)	1050
	07-08	6.66 (6.29-7.06)	6.37 (5.73-6.95)	9.64 (8.88-10.2)	14.8 (12.8-16.5)	20.0 (16.5-22.7)	1063
	09-10	6.61 (6.20-7.05)	6.31 (5.76-6.81)	9.44 (8.75-10.0)	14.7 (13.6-15.8)	18.9 (17.0-22.0)	1210

**See Calculation of Inorganic-related Arsenic Species for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Inorganic-related Arsenic Species (creatinine corrected) (2011 – 2014) Sum of arsenic acid, arsenous acid, dimethylarsenic acid, and methylarsonic acid**

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.31 (6.02-6.63)	6.00 (5.64-6.37)	9.46 (8.88-10.1)	15.1 (13.4-16.5)	19.6 (18.3-20.4)	2516
	13-14	5.53 (5.24-5.83)	5.28 (4.91-5.61)	8.09 (7.61-8.62)	13.0 (11.9-14.1)	17.4 (15.6-18.8)	2653
Age group							
6-11 years	11-12	7.77 (7.36-8.20)	7.33 (6.95-8.26)	10.6 (9.74-11.9)	15.9 (14.3-16.8)	20.2 (16.8-22.3)	401
	13-14	7.38 (6.78-8.04)	6.73 (5.99-8.30)	10.4 (9.30-12.3)	15.4 (14.1-16.8)	17.8 (15.5-19.4)	397
12-19 years	11-12	5.13 (4.48-5.88)	4.76 (4.40-5.11)	7.40 (5.86-8.81)	11.4 (8.17-16.8)	16.8 (11.4-28.7)	392
	13-14	4.61 (4.14-5.15)	4.38 (3.92-4.81)	6.57 (5.55-7.69)	9.38 (8.11-11.1)	11.7 (9.46-16.7)	450
20 years and older	11-12	6.37 (6.08-6.67)	6.09 (5.72-6.52)	9.53 (8.98-10.2)	15.6 (13.6-17.0)	19.6 (18.3-20.4)	1723
	13-14	5.51 (5.24-5.79)	5.29 (4.95-5.57)	7.95 (7.61-8.52)	12.9 (11.9-14.2)	17.7 (15.6-19.4)	1806
Gender							
Males	11-12	5.61 (5.24-6.01)	5.27 (4.81-5.87)	8.39 (7.73-9.04)	12.4 (10.6-13.9)	16.8 (13.6-19.1)	1263
	13-14	5.02 (4.79-5.26)	4.72 (4.44-5.04)	7.04 (6.66-7.54)	11.4 (10.7-12.8)	17.0 (14.2-17.8)	1307
Females	11-12	7.06 (6.69-7.45)	6.77 (6.30-7.15)	11.0 (10.2-11.9)	16.8 (15.3-19.1)	21.5 (19.4-24.2)	1253
	13-14	6.06 (5.62-6.54)	5.80 (5.33-6.46)	9.14 (8.21-10.1)	13.9 (12.5-15.5)	18.0 (15.9-19.5)	1346
Race/ethnicity							
Mexican Americans	11-12	6.48 (6.05-6.94)	6.33 (5.77-6.82)	9.18 (7.97-9.86)	12.4 (11.2-13.3)	16.0 (13.0-19.0)	317
	13-14	5.71 (5.39-6.06)	5.52 (5.15-5.87)	7.61 (6.97-8.52)	10.9 (9.87-12.4)	13.9 (12.2-15.8)	455
Non-Hispanic blacks	11-12	4.83 (4.23-5.53)	4.53 (3.92-5.26)	7.30 (6.09-8.27)	10.9 (9.40-13.2)	16.2 (12.6-17.3)	672
	13-14	4.21 (3.77-4.72)	4.00 (3.42-4.75)	6.13 (5.48-6.97)	8.70 (7.90-10.5)	12.2 (9.92-15.4)	576
Non-Hispanic whites	11-12	6.13 (5.77-6.50)	5.81 (5.27-6.36)	9.09 (8.41-9.86)	14.3 (12.4-16.2)	18.6 (16.2-19.8)	824
	13-14	5.36 (4.99-5.76)	5.14 (4.65-5.55)	7.69 (7.04-8.64)	12.5 (11.1-13.9)	16.0 (14.1-18.3)	979
All Hispanics	11-12	6.96 (6.56-7.38)	6.90 (6.45-7.36)	9.80 (9.30-10.5)	13.4 (12.0-15.9)	17.2 (14.7-20.3)	574
	13-14	5.93 (5.59-6.28)	5.76 (5.43-6.09)	8.05 (7.53-8.71)	11.9 (10.5-13.0)	15.2 (12.4-19.0)	703
Asians	11-12	13.6 (11.9-15.4)	13.2 (11.4-14.6)	20.8 (16.5-24.6)	33.9 (24.6-58.3)	58.8 (36.4-71.5)	356
	13-14	11.8 (10.6-13.2)	11.2 (10.0-12.8)	18.6 (14.7-21.7)	30.3 (23.9-40.3)	44.5 (31.2-48.9)	291

**See Calculation of Inorganic-related Arsenic Species for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenic (V) acid (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	2568
	05-06	*	< LOD	< LOD	< LOD	1.06 (<LOD-1.43)	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2852
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.30)	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.60)	728
	05-06	*	< LOD	< LOD	< LOD	1.00 (<LOD-1.30)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	453
20 years and older	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	1548
	05-06	*	< LOD	< LOD	< LOD	1.09 (<LOD-1.71)	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2020
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.50)	1284
	05-06	*	< LOD	< LOD	< LOD	1.14 (<LOD-1.71)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1396
Females	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.30)	1284
	05-06	*	< LOD	< LOD	< LOD	1.01 (<LOD-1.22)	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1456
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.60)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.80)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	543
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.50)	1078
	05-06	*	< LOD	< LOD	< LOD	1.10 (<LOD-1.74)	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1210

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.0, 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenic (V) acid (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
	13-14	*	< LOD	< LOD	< LOD	< LOD	2654
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	< LOD	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	< LOD	< LOD	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
	13-14	*	< LOD	< LOD	< LOD	< LOD	1807
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
	13-14	*	< LOD	< LOD	< LOD	< LOD	1308
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	< LOD	< LOD	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
	13-14	*	< LOD	< LOD	< LOD	< LOD	980
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	< LOD	< LOD	703
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356
	13-14	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.87 and 0.79, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenic (V) acid (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	3.04 (<LOD-3.50)	2568
	05-06	*	< LOD	< LOD	< LOD	3.23 (<LOD-3.55)	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2851
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	2.80 (<LOD-4.00)	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.75 (<LOD-2.41)	728
	05-06	*	< LOD	< LOD	< LOD	1.69 (<LOD-2.73)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	453
20 years and older	03-04	*	< LOD	< LOD	< LOD	3.18 (<LOD-3.70)	1548
	05-06	*	< LOD	< LOD	< LOD	3.38 (<LOD-3.94)	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2020
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	2.61 (<LOD-3.18)	1284
	05-06	*	< LOD	< LOD	< LOD	2.14 (<LOD-2.73)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1395
Females	03-04	*	< LOD	< LOD	< LOD	3.33 (<LOD-3.89)	1284
	05-06	*	< LOD	< LOD	< LOD	3.55 (<LOD-4.44)	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1456
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	2.69 (<LOD-3.50)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.75 (<LOD-2.19)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	542
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	3.33 (<LOD-3.95)	1078
	05-06	*	< LOD	< LOD	< LOD	3.38 (<LOD-3.80)	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1210

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenic (V) acid (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
	13-14	*	< LOD	< LOD	< LOD	< LOD	2653
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	< LOD	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	< LOD	< LOD	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
	13-14	*	< LOD	< LOD	< LOD	< LOD	1806
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
	13-14	*	< LOD	< LOD	< LOD	< LOD	1307
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	< LOD	< LOD	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
	13-14	*	< LOD	< LOD	< LOD	< LOD	979
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	< LOD	< LOD	703
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356
	13-14	*	< LOD	< LOD	< LOD	< LOD	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenobetaine (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	1.55 (1.31-1.83)	1.00 (.800-1.40)	5.20 (4.00-6.50)	16.8 (12.7-22.3)	35.0 (27.6-44.6)	2568
	05-06	1.86 (1.43-2.41)	1.53 (.980-2.26)	6.73 (4.80-8.91)	22.6 (16.5-30.3)	40.6 (30.7-59.4)	2588
	07-08	*	.670 (.510-.910)	4.26 (3.53-4.88)	16.6 (12.5-20.2)	29.5 (22.8-37.1)	2576
	09-10	1.59 (1.38-1.83)	.940 (.720-1.26)	6.18 (4.67-7.87)	23.5 (19.8-30.1)	50.4 (35.7-63.2)	2870
Age group							
6-11 years	03-04	*	< LOD	1.80 (.800-4.00)	8.80 (3.90-29.9)	29.9 (6.20-190)	292
	05-06	*	< LOD	2.22 (.620-5.35)	7.14 (2.34-29.9)	18.9 (5.46-45.0)	354
	07-08	*	< LOD	1.24 (.780-2.42)	6.71 (3.37-8.38)	13.0 (7.22-25.2)	390
	09-10	*	< LOD	1.20 (.590-3.12)	7.98 (5.20-15.7)	19.4 (9.25-47.9)	380
12-19 years	03-04	*	.600 (.400-.800)	3.20 (2.00-4.70)	13.9 (7.20-25.1)	31.8 (17.2-35.8)	728
	05-06	*	.550 (<LOD-1.14)	3.76 (1.95-7.16)	12.4 (9.15-20.4)	25.6 (16.4-32.4)	703
	07-08	*	< LOD	1.72 (.780-2.62)	4.88 (3.49-9.17)	10.4 (6.81-23.6)	366
	09-10	*	< LOD	2.07 (1.26-3.60)	11.0 (5.35-16.7)	17.8 (12.8-24.0)	455
20 years and older	03-04	1.74 (1.48-2.05)	1.30 (1.00-1.60)	6.10 (4.90-7.10)	18.5 (14.0-23.5)	35.5 (26.8-50.5)	1548
	05-06	2.20 (1.71-2.84)	1.89 (1.41-2.64)	8.14 (5.86-10.4)	27.6 (18.7-35.7)	43.9 (36.0-67.9)	1531
	07-08	1.46 (1.28-1.67)	.960 (.750-1.22)	5.08 (4.30-6.20)	19.1 (14.3-23.7)	31.7 (23.9-46.1)	1820
	09-10	1.92 (1.63-2.26)	1.33 (.960-1.91)	7.60 (6.06-9.90)	28.2 (21.9-34.9)	59.5 (45.7-76.7)	2035
Gender							
Males	03-04	1.66 (1.43-1.93)	1.20 (.900-1.50)	5.80 (4.40-7.10)	18.6 (13.9-23.7)	35.0 (26.8-40.5)	1284
	05-06	1.83 (1.40-2.40)	1.44 (.920-2.04)	6.63 (5.06-8.66)	23.2 (12.8-33.4)	37.1 (28.5-51.3)	1276
	07-08	*	.910 (.660-1.26)	5.07 (4.01-6.81)	19.1 (13.8-22.6)	30.3 (22.8-46.1)	1289
	09-10	1.71 (1.48-1.97)	.990 (.780-1.33)	7.14 (5.38-9.86)	26.8 (21.5-31.8)	57.4 (36.4-64.6)	1402
Females	03-04	1.45 (1.17-1.80)	.900 (.700-1.40)	4.70 (3.40-6.20)	15.6 (11.1-25.3)	32.7 (21.1-51.3)	1284
	05-06	1.88 (1.42-2.50)	1.64 (.950-2.51)	6.81 (4.03-9.88)	21.8 (17.3-30.1)	43.3 (33.8-67.9)	1312
	07-08	*	.530 (.410-.650)	3.52 (2.94-4.35)	14.0 (10.9-17.5)	29.5 (19.4-34.0)	1287
	09-10	1.49 (1.20-1.84)	.890 (.590-1.35)	5.54 (3.56-7.74)	21.2 (14.7-32.7)	47.1 (32.5-76.4)	1468
Race/ethnicity							
Mexican Americans	03-04	1.19 (.871-1.62)	.800 (.500-1.30)	3.20 (1.80-5.20)	10.2 (6.70-21.4)	31.4 (16.3-39.1)	621
	05-06	1.44 (1.23-1.69)	1.04 (.770-1.35)	3.90 (3.03-5.06)	16.8 (11.1-32.0)	41.4 (23.4-57.9)	651
	07-08	*	.560 (<LOD-.910)	3.27 (2.00-5.65)	16.9 (9.73-20.8)	29.6 (19.3-40.5)	513
	09-10	*	.640 (.440-.800)	3.58 (1.80-5.89)	15.5 (7.83-24.6)	31.9 (18.7-44.7)	617
Non-Hispanic blacks	03-04	2.29 (1.60-3.28)	2.00 (1.20-3.50)	7.70 (5.00-12.0)	23.7 (13.2-38.7)	45.6 (25.1-94.0)	725
	05-06	2.55 (1.64-3.99)	2.42 (1.15-4.58)	8.74 (6.01-14.4)	23.8 (15.9-48.9)	59.6 (30.5-121)	695
	07-08	1.58 (1.31-1.90)	1.11 (.750-1.60)	5.88 (4.12-8.13)	21.9 (16.4-24.9)	35.9 (25.4-47.7)	586
	09-10	1.99 (1.60-2.47)	1.79 (1.05-2.41)	7.61 (5.34-10.0)	25.5 (15.4-37.6)	51.2 (31.0-90.9)	546
Non-Hispanic whites	03-04	1.37 (1.11-1.68)	.800 (.700-1.20)	4.30 (2.50-6.30)	13.3 (9.70-21.4)	29.3 (21.4-35.5)	1078
	05-06	1.74 (1.27-2.40)	1.41 (.750-2.27)	6.40 (3.93-9.04)	22.4 (14.1-30.1)	38.4 (27.8-66.8)	1050
	07-08	*	.530 (<LOD-.780)	3.63 (3.06-4.38)	12.6 (9.08-17.1)	24.3 (17.6-30.3)	1063
	09-10	1.43 (1.24-1.65)	.800 (.610-1.18)	5.40 (3.77-7.27)	20.6 (17.7-24.5)	41.3 (30.6-59.5)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.4, 0.4, 0.4, and 0.4 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenobetaine (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	4.62 (3.25-6.25)	18.0 (13.7-23.2)	36.5 (25.7-51.9)	2517
	13-14	*	< LOD	3.70 (2.77-5.00)	15.1 (12.4-19.6)	30.5 (24.2-39.7)	2654
Age group							
6-11 years	11-12	*	< LOD	1.58 (<LOD-4.12)	15.2 (6.60-35.6)	49.6 (20.0-60.1)	401
	13-14	*	< LOD	1.45 (<LOD-2.03)	5.63 (2.82-10.8)	11.7 (6.29-30.8)	397
12-19 years	11-12	*	< LOD	1.82 (<LOD-8.46)	17.6 (6.92-26.5)	32.6 (15.3-100)	392
	13-14	*	< LOD	1.55 (<LOD-2.76)	11.6 (7.52-16.2)	29.8 (13.0-77.9)	450
20 years and older	11-12	*	< LOD	5.26 (4.07-6.58)	18.1 (13.4-24.0)	36.5 (24.4-53.4)	1724
	13-14	*	< LOD	4.35 (3.13-6.09)	17.8 (13.6-21.2)	34.0 (24.5-41.5)	1807
Gender							
Males	11-12	*	< LOD	5.22 (3.38-7.16)	18.4 (13.7-25.9)	41.7 (26.4-60.3)	1264
	13-14	*	< LOD	3.88 (2.95-5.17)	14.7 (10.3-20.6)	30.0 (20.7-41.8)	1308
Females	11-12	*	< LOD	4.18 (2.84-6.11)	17.0 (10.6-22.7)	33.5 (22.1-53.1)	1253
	13-14	*	< LOD	3.53 (2.37-4.95)	16.0 (12.4-21.2)	33.2 (24.3-45.4)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	3.78 (1.93-5.84)	12.5 (6.11-17.6)	19.3 (12.9-34.7)	317
	13-14	*	< LOD	1.85 (<LOD-2.66)	7.45 (2.97-21.7)	21.3 (7.45-45.8)	455
Non-Hispanic blacks	11-12	*	1.19 (<LOD-2.91)	7.09 (3.79-13.4)	30.2 (17.2-51.9)	57.9 (36.1-81.5)	672
	13-14	*	1.25 (<LOD-1.71)	5.04 (3.56-8.35)	21.2 (15.2-26.4)	36.4 (26.4-70.9)	576
Non-Hispanic whites	11-12	*	< LOD	4.07 (2.39-6.12)	16.7 (9.30-22.5)	30.0 (23.2-47.0)	825
	13-14	*	< LOD	3.33 (2.30-5.12)	14.0 (8.82-20.8)	29.4 (20.7-39.7)	980
All Hispanics	11-12	*	< LOD	3.78 (2.65-4.73)	12.2 (7.70-16.8)	19.3 (13.9-37.4)	574
	13-14	*	< LOD	2.30 (1.85-2.81)	9.56 (5.03-14.9)	21.3 (12.0-33.2)	703
Asians	11-12	5.15 (4.31-6.14)	4.80 (3.76-5.82)	17.3 (13.2-21.3)	46.1 (29.1-74.1)	85.6 (51.8-110)	356
	13-14	3.74 (3.04-4.60)	2.31 (1.35-4.24)	11.6 (8.96-17.4)	42.1 (27.3-60.7)	79.5 (48.4-123)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.19 and 1.16.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenobetaine (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	1.54 (1.30-1.82)	1.16 (.959-1.43)	5.00 (3.62-6.91)	16.2 (12.5-20.3)	29.4 (24.0-36.4)	2568
	05-06	1.82 (1.40-2.37)	1.64 (1.10-2.41)	6.64 (4.48-8.79)	20.3 (14.5-28.1)	37.0 (27.5-58.3)	2588
	07-08	*	1.00 (.850-1.18)	4.07 (3.36-4.98)	14.7 (11.1-17.8)	27.7 (18.9-45.4)	2576
	09-10	1.69 (1.45-1.97)	1.23 (.980-1.47)	6.48 (4.90-8.00)	23.6 (18.5-30.7)	49.6 (36.6-61.3)	2869
Age group							
6-11 years	03-04	*	< LOD	2.00 (1.15-4.83)	12.2 (4.13-39.7)	29.6 (6.80-153)	292
	05-06	*	< LOD	2.88 (1.04-6.25)	8.77 (2.88-40.5)	23.6 (6.86-74.8)	354
	07-08	*	< LOD	2.11 (1.27-3.79)	8.98 (4.76-14.8)	16.4 (8.98-23.8)	390
	09-10	*	< LOD	1.70 (1.21-3.02)	9.52 (5.08-20.7)	24.9 (9.81-50.7)	379
12-19 years	03-04	*	.531 (.400-.638)	2.14 (1.39-3.51)	9.29 (4.29-14.7)	17.3 (10.4-28.7)	728
	05-06	*	.620 (<LOD-.800)	2.82 (1.58-4.77)	10.5 (7.03-13.7)	15.4 (11.8-22.3)	703
	07-08	*	< LOD	1.28 (.650-1.72)	5.17 (2.31-6.53)	9.88 (5.72-16.0)	366
	09-10	*	< LOD	2.25 (1.17-3.76)	8.69 (5.03-12.8)	14.0 (9.82-15.5)	455
20 years and older	03-04	1.79 (1.51-2.12)	1.47 (1.15-1.88)	5.91 (4.32-7.72)	17.2 (13.4-21.8)	30.1 (26.1-36.4)	1548
	05-06	2.19 (1.70-2.82)	2.13 (1.40-2.83)	7.79 (5.38-10.2)	24.4 (16.6-32.9)	43.1 (30.5-71.4)	1531
	07-08	1.55 (1.36-1.78)	1.29 (1.13-1.52)	5.27 (3.91-6.40)	16.6 (12.2-21.6)	33.4 (21.0-55.9)	1820
	09-10	2.03 (1.70-2.42)	1.52 (1.18-2.16)	7.65 (6.04-10.4)	27.7 (22.1-35.9)	57.0 (39.7-71.9)	2035
Gender							
Males	03-04	1.40 (1.18-1.67)	1.11 (.909-1.28)	4.78 (3.61-6.70)	14.4 (11.1-18.5)	26.5 (18.6-29.9)	1284
	05-06	1.50 (1.15-1.96)	1.25 (.800-1.93)	5.11 (3.41-7.54)	15.3 (11.2-20.8)	30.5 (19.6-44.0)	1276
	07-08	*	1.04 (.870-1.25)	4.11 (3.16-5.30)	14.9 (10.1-17.9)	27.0 (17.8-49.2)	1289
	09-10	1.56 (1.35-1.80)	1.04 (.880-1.34)	6.20 (4.34-7.79)	23.4 (18.7-27.6)	39.2 (32.0-54.8)	1401
Females	03-04	1.68 (1.37-2.05)	1.25 (.938-1.67)	5.58 (3.50-7.43)	17.2 (12.3-24.5)	32.9 (25.6-46.3)	1284
	05-06	2.20 (1.65-2.93)	2.04 (1.30-2.92)	7.86 (5.38-10.8)	26.4 (16.6-35.6)	46.2 (30.3-74.3)	1312
	07-08	*	.980 (.800-1.18)	4.06 (3.35-5.29)	14.6 (11.1-17.8)	29.6 (18.2-50.0)	1287
	09-10	1.83 (1.48-2.26)	1.36 (1.04-1.75)	6.65 (4.68-9.21)	24.1 (16.5-37.3)	57.0 (36.3-71.3)	1468
Race/ethnicity							
Mexican Americans	03-04	1.10 (.786-1.55)	.877 (.612-1.40)	2.93 (1.78-5.21)	8.88 (5.50-15.4)	19.0 (9.64-29.4)	621
	05-06	1.35 (1.13-1.62)	.970 (.810-1.19)	4.21 (2.79-5.68)	16.6 (10.5-21.3)	36.9 (18.4-69.5)	651
	07-08	*	.780 (<LOD-1.21)	3.04 (1.99-5.09)	13.7 (9.09-16.7)	28.9 (16.2-46.7)	513
	09-10	*	.790 (.670-.940)	3.64 (2.28-4.41)	13.5 (7.78-19.1)	26.8 (16.5-42.0)	617
Non-Hispanic blacks	03-04	1.65 (1.19-2.30)	1.53 (.901-2.45)	5.81 (4.25-7.82)	13.6 (9.76-27.9)	32.9 (13.4-82.1)	725
	05-06	1.84 (1.20-2.83)	1.71 (.910-2.95)	6.07 (3.83-9.25)	19.4 (10.4-45.2)	47.5 (25.3-62.0)	695
	07-08	1.16 (.955-1.41)	.830 (.620-1.12)	4.44 (3.23-6.58)	14.9 (10.5-17.6)	25.1 (17.4-40.0)	586
	09-10	1.59 (1.29-1.96)	1.30 (.850-2.04)	5.92 (4.20-8.40)	19.5 (13.5-27.1)	37.9 (26.1-51.7)	545
Non-Hispanic whites	03-04	1.44 (1.15-1.80)	1.05 (.833-1.36)	4.47 (2.73-6.83)	14.3 (10.9-18.6)	26.5 (18.6-32.0)	1078
	05-06	1.81 (1.32-2.47)	1.65 (.970-2.55)	6.65 (3.95-9.34)	19.7 (12.6-30.5)	36.6 (25.1-71.4)	1050
	07-08	*	.970 (<LOD-1.18)	3.56 (2.93-4.53)	11.6 (8.98-16.6)	23.8 (15.5-41.7)	1063
	09-10	1.60 (1.36-1.87)	1.15 (.900-1.43)	5.85 (4.33-7.65)	22.8 (15.6-29.4)	38.5 (32.0-57.0)	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenobetaine (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	5.63 (4.42-7.22)	18.0 (13.8-26.1)	36.9 (26.9-45.6)	2516
	13-14	*	< LOD	4.91 (3.98-6.31)	16.3 (12.7-21.2)	38.7 (33.3-46.8)	2653
Age group							
6-11 years	11-12	*	< LOD	4.35 (<LOD-6.46)	16.0 (8.00-39.5)	69.0 (16.0-102)	401
	13-14	*	< LOD	3.57 (<LOD-5.38)	9.00 (6.77-11.1)	12.6 (10.1-28.6)	397
12-19 years	11-12	*	< LOD	3.36 (<LOD-8.94)	14.4 (5.56-23.8)	25.9 (13.6-104)	392
	13-14	*	< LOD	2.28 (<LOD-3.15)	9.59 (4.56-16.5)	19.7 (12.2-46.9)	450
20 years and older	11-12	*	< LOD	6.25 (4.78-8.46)	19.3 (14.0-28.4)	35.8 (26.8-44.1)	1723
	13-14	*	< LOD	5.63 (4.54-7.37)	17.8 (14.2-25.2)	44.9 (35.5-52.1)	1806
Gender							
Males	11-12	*	< LOD	4.94 (3.50-6.67)	16.7 (12.6-25.7)	35.7 (23.4-52.8)	1263
	13-14	*	< LOD	4.42 (3.42-5.97)	14.5 (10.7-20.1)	37.8 (24.1-47.7)	1307
Females	11-12	*	< LOD	6.48 (4.79-8.60)	18.8 (15.4-28.1)	37.0 (26.2-46.8)	1253
	13-14	*	< LOD	5.39 (4.56-7.07)	17.8 (13.8-25.8)	41.3 (33.3-53.2)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	3.87 (2.80-5.76)	12.6 (8.36-22.6)	25.9 (13.4-40.3)	317
	13-14	*	< LOD	2.93 (<LOD-4.10)	7.28 (4.10-14.4)	16.6 (6.84-41.5)	455
Non-Hispanic blacks	11-12	*	1.50 (<LOD-2.18)	6.00 (2.63-12.4)	20.3 (12.8-30.0)	38.7 (22.6-78.2)	672
	13-14	*	1.30 (<LOD-1.56)	4.39 (3.28-6.05)	13.7 (10.4-19.3)	29.2 (16.8-60.0)	576
Non-Hispanic whites	11-12	*	< LOD	5.00 (4.06-7.55)	16.8 (12.7-28.7)	35.7 (21.0-45.6)	824
	13-14	*	< LOD	5.08 (3.73-7.46)	16.4 (11.9-24.4)	39.2 (29.3-47.7)	979
All Hispanics	11-12	*	< LOD	4.00 (3.48-4.75)	13.5 (9.17-17.1)	24.9 (16.6-30.9)	574
	13-14	*	< LOD	3.28 (2.56-4.24)	7.95 (5.80-13.7)	17.2 (9.76-29.2)	703
Asians	11-12	6.90 (5.54-8.60)	6.02 (4.78-7.88)	21.5 (14.0-30.7)	60.4 (42.8-82.0)	95.7 (75.6-120)	356
	13-14	5.83 (4.56-7.44)	4.08 (3.42-6.68)	17.4 (12.3-28.7)	71.3 (46.4-81.5)	89.3 (80.4-159)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenocholine (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.6, 0.6, 0.6, and 0.6 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenocholine (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
	13-14	*	< LOD	< LOD	.200 (.140-.250)	.320 (.290-.350)	2654
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	.260 (<LOD-.750)	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	.160 (<LOD-.260)	.260 (.140-.370)	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
	13-14	*	< LOD	< LOD	.210 (.150-.260)	.330 (.290-.370)	1807
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
	13-14	*	< LOD	< LOD	.220 (.130-.290)	.340 (.290-.380)	1308
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	.180 (.110-.230)	.290 (.220-.360)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	.180 (<LOD-.260)	.320 (.220-.390)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	.260 (.200-.310)	.370 (.310-.410)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
	13-14	*	< LOD	< LOD	.160 (<LOD-.250)	.280 (.200-.360)	980
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	.180 (<LOD-.270)	.330 (.250-.390)	703
Asians	11-12	*	< LOD	< LOD	.310 (<LOD-.450)	.560 (.370-.930)	356
	13-14	*	< LOD	.130 (<LOD-.230)	.430 (.340-.570)	.860 (.480-1.83)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.28 and 0.11.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenocholine (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenocholine (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
	13-14	*	< LOD	< LOD	.333 (.296-.381)	.533 (.444-.615)	2653
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	401
	13-14	*	< LOD	< LOD	< LOD	.533 (<LOD-.974)	397
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
	13-14	*	< LOD	< LOD	.229 (<LOD-.276)	.308 (.250-.348)	450
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
	13-14	*	< LOD	< LOD	.351 (.314-.400)	.571 (.471-.667)	1806
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
	13-14	*	< LOD	< LOD	.276 (.250-.320)	.526 (.338-.603)	1307
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
	13-14	*	< LOD	< LOD	.381 (.333-.444)	.533 (.471-.667)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
	13-14	*	< LOD	< LOD	.276 (<LOD-.308)	.348 (.286-.490)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
	13-14	*	< LOD	< LOD	.235 (.190-.259)	.316 (.259-.364)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
	13-14	*	< LOD	< LOD	.364 (<LOD-.444)	.571 (.444-.667)	979
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
	13-14	*	< LOD	< LOD	.283 (<LOD-.320)	.364 (.308-.444)	703
Asians	11-12	*	< LOD	< LOD	.952 (<LOD-1.33)	1.43 (.952-2.00)	356
	13-14	*	< LOD	.333 (<LOD-.421)	.727 (.485-1.14)	1.25 (.800-4.25)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenous (III) acid (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.40 (<LOD-1.70)	728
	05-06	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.40)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	1.26 (<LOD-1.73)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	1.24 (<LOD-1.50)	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	2.00 (<LOD-3.00)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.76)	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.80)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.2, 1.2, 1.2, and 1.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenous (III) acid (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.520 (<LOD-.600)	.840 (.760-.960)	1.11 (.980-1.27)	2517
	13-14	.316 (.275-.365)	.470 (.360-.560)	.730 (.660-.810)	1.00 (.930-1.07)	1.19 (1.12-1.29)	2654
Age group							
6-11 years	11-12	*	< LOD	.540 (<LOD-.660)	.870 (.710-1.00)	1.03 (.820-1.22)	401
	13-14	.360 (.278-.466)	.540 (.370-.630)	.810 (.680-.880)	1.05 (.930-1.13)	1.22 (1.07-1.32)	397
12-19 years	11-12	*	< LOD	.610 (.480-.720)	.920 (.810-1.14)	1.18 (.980-1.43)	392
	13-14	.429 (.358-.515)	.570 (.490-.630)	.830 (.730-.930)	1.12 (1.00-1.28)	1.35 (1.13-1.57)	450
20 years and older	11-12	*	< LOD	.500 (<LOD-.570)	.830 (.750-.940)	1.11 (.980-1.27)	1724
	13-14	.299 (.258-.346)	.430 (.300-.540)	.720 (.650-.790)	.970 (.890-1.07)	1.16 (1.08-1.27)	1807
Gender							
Males	11-12	*	< LOD	.600 (.520-.680)	.980 (.840-1.13)	1.31 (1.11-1.59)	1264
	13-14	.365 (.306-.436)	.540 (.420-.630)	.800 (.710-.890)	1.04 (.970-1.12)	1.21 (1.14-1.35)	1308
Females	11-12	*	< LOD	< LOD	.760 (.600-.840)	.940 (.810-1.07)	1253
	13-14	.276 (.241-.315)	.400 (.260-.490)	.660 (.600-.730)	.940 (.850-1.04)	1.13 (1.05-1.28)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.570 (.490-.660)	.830 (.770-1.03)	1.14 (.880-1.37)	317
	13-14	.416 (.351-.494)	.580 (.460-.700)	.870 (.750-.990)	1.08 (1.03-1.18)	1.29 (1.17-1.47)	455
Non-Hispanic blacks	11-12	*	< LOD	.520 (<LOD-.680)	.880 (.700-1.10)	1.21 (.980-1.57)	672
	13-14	.416 (.378-.458)	.550 (.490-.600)	.840 (.730-.900)	1.12 (1.00-1.20)	1.33 (1.18-1.46)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	.800 (.640-.900)	1.03 (.830-1.18)	825
	13-14	.267 (.225-.316)	.380 (.170-.520)	.670 (.600-.730)	.900 (.820-.950)	1.05 (.940-1.21)	980
All Hispanics	11-12	*	< LOD	.620 (.510-.760)	.910 (.820-1.07)	1.29 (1.07-1.43)	574
	13-14	.423 (.358-.501)	.580 (.460-.700)	.880 (.790-.980)	1.11 (1.06-1.18)	1.35 (1.20-1.40)	703
Asians	11-12	*	.510 (<LOD-.610)	.900 (.740-.990)	1.32 (1.10-1.63)	1.79 (1.53-2.31)	356
	13-14	.456 (.393-.528)	.600 (.500-.680)	.900 (.790-1.09)	1.34 (1.15-1.56)	1.66 (1.37-2.14)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.48 and 0.12.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenous (III) acid (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	1.95 (<LOD-2.76)	728
	05-06	*	< LOD	< LOD	< LOD	2.02 (<LOD-3.04)	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	2.43 (<LOD-3.15)	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	2.93 (<LOD-3.54)	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	3.08 (<LOD-4.44)	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	3.54 (<LOD-4.72)	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	2.00 (<LOD-2.29)	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Arsenous (III) acid (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.791 (<LOD-.850)	1.35 (1.21-1.42)	1.79 (1.55-1.89)	2516
	13-14	.365 (.311-.427)	.387 (.320-.460)	.715 (.612-.851)	1.23 (1.05-1.39)	1.62 (1.38-1.85)	2653
Age group							
6-11 years	11-12	*	< LOD	1.03 (<LOD-1.13)	1.54 (1.26-1.79)	2.00 (1.55-2.62)	401
	13-14	.541 (.415-.706)	.578 (.451-.711)	1.03 (.764-1.40)	1.70 (1.22-1.98)	1.94 (1.60-2.92)	397
12-19 years	11-12	*	< LOD	.709 (.607-.850)	1.11 (.971-1.31)	1.36 (1.03-2.50)	392
	13-14	.389 (.335-.452)	.390 (.321-.497)	.683 (.536-.862)	1.03 (.866-1.37)	1.43 (1.04-1.77)	450
20 years and older	11-12	*	< LOD	.773 (<LOD-.850)	1.36 (1.19-1.48)	1.79 (1.55-1.95)	1723
	13-14	.347 (.296-.407)	.366 (.303-.444)	.691 (.592-.832)	1.21 (1.00-1.37)	1.56 (1.36-1.82)	1806
Gender							
Males	11-12	*	< LOD	.708 (.645-.756)	1.12 (.981-1.25)	1.48 (1.28-1.70)	1263
	13-14	.366 (.306-.436)	.388 (.311-.475)	.702 (.592-.825)	1.23 (.942-1.40)	1.59 (1.33-1.86)	1307
Females	11-12	*	< LOD	< LOD	1.42 (1.36-1.62)	1.89 (1.70-2.27)	1253
	13-14	.364 (.311-.426)	.387 (.320-.459)	.727 (.616-.889)	1.24 (1.05-1.42)	1.65 (1.40-1.91)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.723 (.630-.850)	1.13 (.919-1.42)	1.55 (1.13-2.20)	317
	13-14	.475 (.386-.584)	.471 (.394-.634)	.843 (.692-1.11)	1.50 (1.19-1.79)	1.85 (1.67-2.07)	455
Non-Hispanic blacks	11-12	*	< LOD	.514 (<LOD-.586)	.919 (.739-1.06)	1.22 (.971-1.64)	672
	13-14	.314 (.272-.362)	.328 (.285-.398)	.577 (.483-.673)	.878 (.782-.957)	1.05 (.957-1.24)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.36 (1.21-1.48)	1.79 (1.51-2.00)	824
	13-14	.329 (.275-.393)	.351 (.278-.433)	.653 (.553-.793)	1.17 (.900-1.37)	1.49 (1.30-1.72)	979
All Hispanics	11-12	*	< LOD	.762 (.704-.833)	1.21 (1.00-1.48)	1.55 (1.34-1.95)	574
	13-14	.472 (.388-.575)	.482 (.392-.638)	.851 (.718-1.05)	1.41 (1.13-1.74)	1.84 (1.65-2.06)	703
Asians	11-12	*	.739 (<LOD-.850)	1.21 (1.06-1.45)	1.96 (1.62-2.43)	2.91 (2.00-3.64)	356
	13-14	.709 (.590-.854)	.779 (.596-.938)	1.22 (1.08-1.33)	1.98 (1.48-3.00)	3.04 (1.98-4.15)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Dimethylarsinic acid (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	3.71 (3.33-4.14)	3.90 (3.00-4.00)	6.00 (5.00-7.00)	11.0 (9.20-12.0)	16.0 (13.0-17.8)	2568
	05-06	3.95 (3.59-4.35)	3.90 (3.46-4.31)	6.17 (5.53-7.04)	10.3 (9.00-12.2)	15.0 (12.2-17.8)	2588
	07-08	3.67 (3.44-3.91)	3.58 (3.44-3.84)	5.96 (5.44-6.57)	9.78 (8.72-11.2)	13.3 (11.8-15.3)	2576
	09-10	3.67 (3.43-3.93)	3.50 (3.25-3.76)	6.16 (5.59-6.73)	11.5 (9.35-13.7)	17.4 (14.0-21.0)	2871
Age group							
6-11 years	03-04	3.73 (3.12-4.45)	4.00 (3.00-4.00)	6.00 (5.00-7.00)	9.00 (7.00-12.0)	12.0 (8.00-22.0)	292
	05-06	3.96 (3.49-4.49)	3.94 (3.20-4.71)	5.94 (5.01-7.10)	10.5 (7.10-12.1)	13.0 (10.7-15.3)	354
	07-08	3.86 (3.45-4.32)	3.76 (3.47-4.01)	6.10 (5.29-6.99)	10.4 (7.57-13.9)	15.2 (9.32-39.2)	390
	09-10	3.53 (3.17-3.92)	3.27 (2.81-3.87)	5.76 (5.07-6.53)	10.7 (7.84-11.9)	12.8 (11.0-14.4)	380
12-19 years	03-04	3.85 (3.34-4.42)	4.00 (3.00-4.00)	6.00 (5.00-7.10)	9.30 (7.70-12.0)	13.0 (10.0-16.0)	728
	05-06	3.97 (3.46-4.55)	3.97 (3.31-4.64)	5.74 (5.11-7.10)	9.43 (7.63-11.6)	12.0 (10.7-13.9)	703
	07-08	3.60 (3.16-4.09)	3.66 (3.24-4.26)	5.53 (4.75-6.72)	8.90 (7.33-9.95)	10.7 (9.08-13.3)	366
	09-10	3.08 (2.77-3.43)	2.89 (2.64-3.29)	5.05 (4.44-5.77)	7.89 (6.87-10.1)	11.3 (8.75-13.8)	456
20 years and older	03-04	3.69 (3.31-4.11)	3.70 (3.00-4.00)	6.00 (5.00-7.00)	11.0 (10.0-12.0)	16.0 (13.0-19.0)	1548
	05-06	3.95 (3.58-4.36)	3.87 (3.46-4.32)	6.30 (5.59-7.28)	10.3 (9.25-13.3)	16.2 (12.5-19.4)	1531
	07-08	3.66 (3.43-3.91)	3.56 (3.41-3.80)	5.97 (5.44-6.63)	9.89 (8.72-11.4)	13.8 (11.8-15.5)	1820
	09-10	3.79 (3.51-4.09)	3.60 (3.33-3.87)	6.40 (5.71-7.03)	12.1 (9.52-16.0)	18.2 (15.8-23.6)	2035
Gender							
Males	03-04	4.12 (3.60-4.71)	4.00 (3.70-4.30)	6.00 (5.60-7.70)	11.0 (9.00-15.0)	17.0 (12.1-22.0)	1284
	05-06	4.17 (3.79-4.59)	4.04 (3.68-4.43)	6.32 (5.41-7.61)	10.5 (8.68-13.3)	14.8 (11.8-19.2)	1276
	07-08	4.05 (3.73-4.40)	3.96 (3.63-4.27)	6.53 (5.77-7.15)	10.3 (9.31-12.0)	14.6 (11.6-20.2)	1289
	09-10	3.89 (3.50-4.32)	3.71 (3.35-4.11)	6.33 (5.80-7.02)	11.6 (8.80-17.3)	19.2 (13.0-24.7)	1403
Females	03-04	3.37 (3.00-3.78)	3.00 (3.00-4.00)	5.50 (4.80-6.20)	10.0 (8.00-11.0)	14.0 (11.0-17.7)	1284
	05-06	3.75 (3.37-4.18)	3.70 (3.28-4.21)	6.03 (5.46-6.99)	9.95 (8.81-12.2)	15.5 (11.6-19.0)	1312
	07-08	3.34 (3.13-3.57)	3.37 (3.15-3.53)	5.48 (5.00-6.05)	8.99 (7.97-10.4)	11.9 (10.7-13.9)	1287
	09-10	3.48 (3.22-3.76)	3.28 (2.95-3.63)	5.85 (5.21-6.69)	11.5 (9.42-13.3)	16.1 (13.8-17.7)	1468
Race/ethnicity							
Mexican Americans	03-04	4.72 (4.27-5.22)	4.80 (4.00-5.00)	7.00 (6.00-9.00)	12.0 (10.0-16.0)	17.0 (12.0-25.0)	621
	05-06	4.43 (4.15-4.72)	4.66 (4.26-5.13)	6.93 (6.38-7.58)	9.51 (8.70-11.1)	13.1 (10.3-15.1)	651
	07-08	4.36 (4.05-4.69)	4.62 (4.07-5.07)	7.14 (6.23-7.76)	9.67 (8.39-10.8)	11.7 (9.96-17.6)	513
	09-10	3.90 (3.45-4.40)	3.98 (3.18-4.63)	6.53 (5.61-7.15)	10.7 (8.95-13.2)	16.2 (13.1-19.2)	618
Non-Hispanic blacks	03-04	4.27 (3.71-4.92)	4.00 (3.50-5.00)	7.00 (6.00-8.00)	11.6 (9.00-15.0)	16.0 (14.0-18.7)	725
	05-06	4.28 (3.68-4.98)	4.02 (3.37-4.82)	6.42 (5.31-7.36)	10.9 (8.22-13.1)	15.2 (11.5-27.1)	695
	07-08	4.19 (3.92-4.49)	3.98 (3.63-4.27)	6.69 (5.80-7.43)	11.2 (10.1-12.5)	14.7 (12.1-19.2)	586
	09-10	4.09 (3.63-4.61)	3.93 (3.31-4.36)	7.13 (5.99-8.63)	12.3 (10.1-17.0)	18.2 (13.7-27.8)	546
Non-Hispanic whites	03-04	3.27 (2.95-3.62)	3.00 (3.00-3.80)	5.00 (4.60-6.00)	9.00 (7.00-10.0)	12.0 (9.50-15.0)	1078
	05-06	3.69 (3.28-4.15)	3.60 (3.19-4.08)	5.66 (5.10-6.70)	9.62 (8.11-11.8)	13.9 (10.6-17.8)	1050
	07-08	3.23 (3.01-3.48)	3.34 (3.04-3.53)	5.14 (4.77-5.59)	8.27 (7.48-9.07)	10.5 (9.25-13.2)	1063
	09-10	3.21 (3.07-3.37)	3.12 (2.91-3.29)	5.32 (5.00-5.66)	8.65 (7.23-10.1)	12.0 (10.1-14.4)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.7, 1.7, 1.7, and 1.7 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Dimethylarsinic acid (2011 – 2014)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.47 (3.18-3.78)	3.37 (3.06-3.66)	5.81 (5.14-6.59)	9.55 (8.43-11.2)	14.0 (11.4-16.5)	2517
	13-14	3.20 (2.97-3.44)	3.08 (2.73-3.41)	5.15 (4.68-5.69)	8.60 (8.02-9.25)	11.8 (10.6-13.5)	2654
Age group							
6-11 years	11-12	3.43 (3.06-3.85)	3.53 (2.81-4.05)	5.81 (5.21-6.38)	8.60 (7.55-9.73)	11.4 (9.35-13.7)	401
	13-14	3.33 (2.95-3.75)	3.12 (2.68-3.56)	5.27 (4.31-6.14)	8.69 (7.44-10.8)	11.8 (8.62-18.5)	397
12-19 years	11-12	3.27 (2.71-3.94)	3.33 (2.49-4.20)	5.02 (4.33-6.05)	8.53 (6.29-11.1)	11.6 (8.74-17.9)	392
	13-14	3.30 (2.99-3.63)	3.24 (2.86-3.66)	4.95 (4.53-5.66)	9.02 (6.97-10.6)	11.4 (10.0-13.1)	450
20 years and older	11-12	3.51 (3.22-3.82)	3.37 (3.05-3.67)	5.91 (5.20-6.83)	9.94 (8.57-11.5)	14.1 (12.2-16.4)	1724
	13-14	3.17 (2.93-3.43)	3.02 (2.66-3.41)	5.18 (4.68-5.78)	8.53 (7.82-9.21)	11.7 (10.3-14.2)	1807
Gender							
Males	11-12	3.79 (3.40-4.23)	3.71 (3.33-4.29)	6.27 (5.36-7.61)	10.3 (8.75-12.5)	15.3 (12.5-16.7)	1264
	13-14	3.31 (3.12-3.51)	3.25 (3.02-3.56)	5.34 (5.03-5.61)	8.56 (8.11-9.30)	11.6 (10.3-12.8)	1308
Females	11-12	3.19 (2.92-3.48)	3.01 (2.73-3.30)	5.30 (4.61-5.96)	8.96 (7.72-10.5)	12.2 (9.56-17.8)	1253
	13-14	3.09 (2.81-3.40)	2.81 (2.53-3.23)	4.85 (4.27-5.82)	8.60 (7.56-9.54)	11.9 (10.6-14.6)	1346
Race/ethnicity							
Mexican Americans	11-12	3.67 (3.33-4.04)	3.58 (3.27-4.18)	5.82 (5.24-6.47)	9.05 (7.91-10.0)	12.1 (9.61-17.4)	317
	13-14	3.32 (3.10-3.54)	3.45 (2.94-3.84)	5.19 (4.79-5.75)	7.74 (7.22-8.45)	9.94 (8.21-12.7)	455
Non-Hispanic blacks	11-12	4.05 (3.46-4.74)	4.05 (3.35-4.65)	6.78 (5.46-8.21)	12.0 (10.0-14.2)	17.4 (14.2-19.8)	672
	13-14	3.83 (3.35-4.39)	3.62 (3.21-4.05)	5.84 (4.60-7.84)	10.2 (8.42-13.2)	15.7 (10.9-20.7)	576
Non-Hispanic whites	11-12	3.06 (2.82-3.33)	2.97 (2.72-3.29)	4.95 (4.39-5.77)	7.98 (6.92-9.02)	10.5 (8.71-13.0)	825
	13-14	2.86 (2.59-3.15)	2.69 (2.29-3.10)	4.56 (3.96-5.21)	7.52 (6.61-8.52)	9.62 (8.53-11.3)	980
All Hispanics	11-12	4.02 (3.45-4.69)	3.96 (3.33-4.68)	6.73 (5.49-8.39)	11.1 (8.53-16.6)	16.8 (12.1-19.7)	574
	13-14	3.54 (3.16-3.97)	3.61 (3.07-4.11)	5.63 (5.01-6.88)	9.09 (7.80-10.3)	11.8 (9.98-12.9)	703
Asians	11-12	7.38 (6.50-8.37)	7.52 (6.45-8.74)	14.4 (11.7-17.2)	24.7 (20.3-31.3)	38.6 (28.5-40.5)	356
	13-14	5.59 (5.13-6.09)	5.62 (5.08-6.53)	11.3 (9.01-12.4)	19.9 (15.6-22.1)	23.6 (19.7-34.6)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 1.8 and 1.91.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Dimethylarsinic acid (creatinine corrected) (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	3.69 (3.24-4.19)	3.37 (2.94-3.91)	5.71 (4.69-6.74)	9.09 (7.61-11.5)	13.0 (10.7-16.0)	2568
	05-06	3.88 (3.57-4.22)	3.66 (3.39-3.93)	5.71 (5.10-6.43)	9.57 (7.95-10.9)	12.3 (10.6-15.0)	2588
	07-08	3.83 (3.60-4.07)	3.62 (3.37-3.93)	5.80 (5.33-6.32)	9.01 (8.00-9.97)	11.6 (9.97-14.4)	2576
	09-10	3.90 (3.64-4.18)	3.53 (3.30-3.80)	6.03 (5.36-6.62)	10.2 (9.15-11.8)	14.9 (12.3-19.2)	2870
Age group							
6-11 years	03-04	4.34 (3.57-5.28)	4.03 (3.20-4.80)	6.32 (4.65-8.33)	10.3 (7.00-13.9)	13.9 (7.86-21.8)	292
	05-06	4.89 (4.22-5.65)	4.31 (3.64-5.69)	6.85 (5.71-7.69)	10.0 (7.54-14.7)	14.7 (10.0-18.8)	354
	07-08	5.07 (4.56-5.64)	4.54 (4.08-4.82)	6.90 (6.14-7.76)	12.0 (8.39-17.1)	20.9 (12.0-40.8)	390
	09-10	4.77 (4.34-5.23)	4.48 (4.12-4.85)	6.41 (5.66-6.82)	10.0 (7.63-15.3)	16.5 (9.33-27.0)	379
12-19 years	03-04	2.74 (2.39-3.14)	2.55 (2.27-2.94)	3.77 (3.17-4.44)	5.88 (4.65-6.67)	7.18 (6.16-11.7)	728
	05-06	3.05 (2.78-3.34)	2.92 (2.55-3.29)	4.25 (3.87-4.84)	6.68 (5.49-8.06)	9.08 (7.11-10.6)	703
	07-08	2.80 (2.54-3.09)	2.69 (2.37-2.93)	3.91 (3.46-4.56)	6.27 (4.72-8.21)	8.21 (5.77-10.1)	366
	09-10	2.89 (2.61-3.20)	2.60 (2.36-2.86)	4.08 (3.43-4.80)	6.67 (5.71-8.57)	10.0 (7.61-12.6)	456
20 years and older	03-04	3.79 (3.34-4.31)	3.48 (3.00-4.00)	5.95 (4.86-7.05)	9.45 (8.00-12.0)	13.5 (11.1-18.6)	1548
	05-06	3.93 (3.62-4.27)	3.71 (3.42-4.02)	5.82 (5.22-6.47)	9.74 (8.00-11.2)	12.6 (10.9-15.8)	1531
	07-08	3.89 (3.64-4.16)	3.69 (3.44-4.02)	5.96 (5.47-6.58)	9.10 (8.00-10.0)	11.6 (9.74-14.5)	1820
	09-10	4.00 (3.70-4.32)	3.61 (3.33-3.90)	6.25 (5.57-6.88)	10.8 (9.23-12.9)	16.1 (12.6-22.2)	2035
Gender							
Males	03-04	3.48 (2.95-4.10)	3.16 (2.70-3.82)	5.46 (4.17-6.90)	8.59 (6.92-12.0)	12.3 (8.84-18.9)	1284
	05-06	3.43 (3.13-3.75)	3.24 (2.91-3.63)	5.11 (4.25-6.08)	7.90 (6.65-9.77)	11.0 (9.29-13.0)	1276
	07-08	3.63 (3.41-3.85)	3.44 (3.22-3.68)	5.33 (5.00-5.82)	8.31 (7.21-10.1)	12.1 (9.73-14.9)	1289
	09-10	3.54 (3.29-3.80)	3.20 (3.04-3.38)	5.31 (4.80-5.99)	9.24 (7.80-10.8)	13.3 (10.3-16.5)	1402
Females	03-04	3.89 (3.49-4.34)	3.57 (3.13-4.06)	5.78 (4.95-6.67)	9.32 (8.00-11.5)	13.7 (10.6-18.6)	1284
	05-06	4.37 (4.03-4.75)	4.03 (3.72-4.51)	6.26 (5.71-6.84)	10.0 (8.50-12.6)	14.4 (11.2-19.3)	1312
	07-08	4.02 (3.75-4.32)	3.80 (3.46-4.26)	6.15 (5.58-7.06)	9.23 (8.11-10.1)	10.9 (9.52-14.9)	1287
	09-10	4.28 (3.96-4.63)	4.00 (3.62-4.32)	6.55 (5.98-7.14)	11.0 (9.64-13.2)	17.2 (13.2-24.4)	1468
Race/ethnicity							
Mexican Americans	03-04	4.38 (3.80-5.05)	4.11 (3.29-4.90)	6.25 (4.84-8.15)	10.3 (8.00-11.8)	12.9 (11.1-15.2)	621
	05-06	4.16 (3.83-4.52)	4.00 (3.65-4.36)	5.94 (5.40-6.49)	8.69 (7.23-9.65)	10.2 (9.52-13.2)	651
	07-08	4.34 (3.87-4.88)	4.19 (3.66-4.83)	6.23 (5.31-7.44)	9.14 (8.00-11.0)	12.1 (10.1-15.1)	513
	09-10	4.06 (3.63-4.54)	3.95 (3.33-4.44)	6.32 (5.36-7.10)	9.23 (8.10-10.6)	11.7 (10.2-14.8)	618
Non-Hispanic blacks	03-04	3.08 (2.69-3.52)	2.86 (2.60-3.24)	4.34 (3.82-5.05)	7.81 (5.82-9.45)	10.4 (7.61-16.9)	725
	05-06	3.08 (2.70-3.52)	2.91 (2.52-3.32)	4.21 (3.75-4.91)	7.33 (5.40-10.7)	11.6 (7.66-17.9)	695
	07-08	3.08 (2.87-3.31)	2.77 (2.56-3.13)	4.74 (4.31-5.22)	7.29 (6.58-8.26)	9.67 (8.26-11.0)	586
	09-10	3.26 (2.90-3.66)	2.86 (2.47-3.34)	5.10 (4.43-6.06)	10.0 (7.39-11.7)	13.1 (11.1-15.2)	545
Non-Hispanic whites	03-04	3.44 (2.97-3.98)	3.17 (2.80-3.73)	5.16 (4.03-6.49)	8.00 (6.32-10.9)	11.1 (8.00-15.4)	1078
	05-06	3.82 (3.47-4.21)	3.64 (3.30-3.93)	5.71 (4.90-6.51)	9.23 (7.26-10.6)	11.6 (9.93-13.9)	1050
	07-08	3.62 (3.38-3.87)	3.48 (3.20-3.76)	5.38 (4.95-5.80)	8.00 (7.28-8.86)	10.0 (8.96-11.1)	1063
	09-10	3.58 (3.36-3.81)	3.31 (3.09-3.49)	5.30 (4.87-5.75)	8.12 (7.06-9.21)	11.5 (9.43-14.3)	1226

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Dimethylarsinic acid (creatinine corrected) (2011 – 2014)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.92 (3.69-4.16)	3.65 (3.47-3.91)	5.92 (5.40-6.49)	9.86 (8.68-11.3)	13.1 (11.5-15.2)	2516
	13-14	3.68 (3.46-3.92)	3.47 (3.17-3.79)	5.53 (5.11-5.97)	9.18 (8.11-10.2)	12.7 (11.4-13.6)	2653
Age group							
6-11 years	11-12	4.86 (4.54-5.21)	4.44 (4.10-4.70)	6.82 (6.15-7.69)	9.77 (8.65-11.5)	13.8 (10.3-15.0)	401
	13-14	5.00 (4.56-5.50)	4.59 (4.06-5.40)	7.50 (6.62-8.44)	10.8 (9.11-12.3)	13.3 (12.0-14.4)	397
12-19 years	11-12	3.13 (2.68-3.64)	3.02 (2.48-3.34)	4.51 (3.49-5.62)	7.03 (5.08-10.8)	10.8 (6.13-18.1)	392
	13-14	2.99 (2.68-3.33)	2.74 (2.57-3.00)	4.32 (3.65-5.28)	6.80 (5.81-7.46)	9.30 (6.94-12.8)	450
20 years and older	11-12	3.96 (3.75-4.19)	3.73 (3.52-3.94)	6.05 (5.45-6.68)	10.1 (8.97-11.3)	13.1 (11.5-15.5)	1723
	13-14	3.68 (3.46-3.91)	3.48 (3.21-3.75)	5.47 (5.12-5.89)	9.32 (8.24-10.3)	13.0 (11.3-14.7)	1806
Gender							
Males	11-12	3.55 (3.27-3.86)	3.34 (3.11-3.69)	5.32 (4.75-6.06)	8.47 (7.35-9.73)	11.0 (9.45-14.1)	1263
	13-14	3.31 (3.12-3.51)	3.03 (2.92-3.29)	4.79 (4.57-5.05)	8.05 (7.51-9.13)	11.4 (10.3-12.8)	1307
Females	11-12	4.30 (4.06-4.56)	4.10 (3.85-4.35)	6.68 (5.93-7.36)	10.8 (9.77-12.4)	14.9 (12.4-17.0)	1253
	13-14	4.08 (3.75-4.44)	3.94 (3.54-4.29)	6.16 (5.64-6.90)	9.84 (8.39-12.0)	13.4 (11.3-15.4)	1346
Race/ethnicity							
Mexican Americans	11-12	4.12 (3.83-4.44)	4.10 (3.43-4.59)	5.77 (5.29-6.37)	8.06 (7.49-9.54)	10.5 (8.70-14.8)	317
	13-14	3.78 (3.61-3.96)	3.72 (3.55-3.94)	5.11 (4.81-5.40)	7.29 (6.75-7.94)	9.73 (7.53-11.7)	455
Non-Hispanic blacks	11-12	3.16 (2.66-3.74)	3.05 (2.41-3.67)	4.98 (4.01-6.08)	8.27 (6.68-9.70)	11.3 (8.87-13.7)	672
	13-14	2.89 (2.53-3.30)	2.68 (2.33-3.05)	4.40 (3.70-5.00)	6.81 (5.84-8.72)	10.1 (7.41-12.5)	576
Non-Hispanic whites	11-12	3.68 (3.44-3.93)	3.47 (3.31-3.63)	5.32 (5.04-5.93)	9.07 (7.47-10.3)	11.5 (9.87-13.1)	824
	13-14	3.52 (3.22-3.84)	3.38 (2.94-3.75)	5.24 (4.70-5.87)	8.64 (7.50-10.1)	12.0 (9.54-13.5)	979
All Hispanics	11-12	4.50 (4.14-4.89)	4.38 (4.20-4.82)	6.62 (5.91-7.47)	9.46 (8.09-10.6)	13.0 (9.66-16.6)	574
	13-14	3.95 (3.69-4.23)	3.84 (3.64-4.08)	5.56 (5.12-6.09)	7.92 (6.98-9.33)	11.0 (8.07-14.0)	703
Asians	11-12	9.89 (8.57-11.4)	9.72 (8.10-11.0)	15.6 (12.4-20.5)	28.6 (20.1-41.1)	45.1 (34.3-57.2)	356
	13-14	8.71 (7.85-9.67)	8.44 (7.33-9.33)	13.8 (12.2-17.0)	24.7 (18.7-34.4)	37.9 (27.5-44.4)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Monomethylarsonic acid (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.20 (1.00-1.30)	1.90 (1.60-2.10)	2.40 (2.00-2.80)	2567
	05-06	*	< LOD	1.19 (1.05-1.34)	1.72 (1.51-1.94)	2.12 (1.79-2.70)	2588
	07-08	*	< LOD	1.11 (1.00-1.20)	1.61 (1.51-1.69)	2.09 (1.91-2.26)	2576
	09-10	*	< LOD	1.02 (.920-1.10)	1.64 (1.41-1.83)	2.01 (1.82-2.28)	2871
Age group							
6-11 years	03-04	*	< LOD	1.00 (<LOD-1.40)	1.80 (1.30-2.60)	2.30 (1.70-2.90)	292
	05-06	*	< LOD	1.03 (<LOD-1.37)	1.54 (1.37-2.12)	2.12 (1.51-2.73)	354
	07-08	*	< LOD	1.05 (<LOD-1.28)	1.60 (1.32-1.83)	2.04 (1.64-2.86)	390
	09-10	*	< LOD	< LOD	1.38 (1.00-1.84)	1.81 (1.26-2.13)	380
12-19 years	03-04	*	< LOD	1.50 (1.10-1.80)	2.20 (1.70-3.00)	2.90 (2.20-3.60)	728
	05-06	*	< LOD	1.31 (1.09-1.46)	1.99 (1.62-2.23)	2.41 (2.04-2.89)	703
	07-08	*	< LOD	1.26 (1.11-1.35)	1.83 (1.54-2.22)	2.31 (1.87-2.90)	366
	09-10	*	< LOD	1.10 (.910-1.25)	1.62 (1.33-1.92)	2.03 (1.74-2.30)	456
20 years and older	03-04	*	< LOD	1.20 (1.00-1.30)	1.80 (1.50-2.10)	2.30 (2.00-2.60)	1547
	05-06	*	< LOD	1.20 (1.05-1.33)	1.70 (1.48-1.90)	2.06 (1.74-2.75)	1531
	07-08	*	< LOD	1.08 (.970-1.17)	1.58 (1.44-1.71)	1.98 (1.82-2.21)	1820
	09-10	*	< LOD	1.02 (.930-1.11)	1.65 (1.42-1.86)	2.03 (1.81-2.35)	2035
Gender							
Males	03-04	*	< LOD	1.30 (1.10-1.60)	2.00 (1.80-2.40)	2.60 (2.10-3.00)	1283
	05-06	*	< LOD	1.31 (1.12-1.49)	1.79 (1.57-2.09)	2.23 (1.85-2.86)	1276
	07-08	*	< LOD	1.24 (1.13-1.35)	1.78 (1.63-1.94)	2.33 (1.97-2.71)	1289
	09-10	*	< LOD	1.07 (.970-1.23)	1.77 (1.47-2.01)	2.19 (1.83-2.68)	1403
Females	03-04	*	< LOD	1.00 (<LOD-1.20)	1.60 (1.30-1.90)	2.10 (1.70-2.60)	1284
	05-06	*	< LOD	1.08 (.920-1.24)	1.57 (1.36-1.90)	2.04 (1.67-2.50)	1312
	07-08	*	< LOD	.970 (<LOD-1.06)	1.42 (1.30-1.57)	1.81 (1.68-1.90)	1287
	09-10	*	< LOD	.950 (<LOD-1.06)	1.52 (1.27-1.74)	1.89 (1.66-2.12)	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	1.50 (1.20-1.90)	2.20 (1.70-2.80)	2.80 (2.00-4.40)	621
	05-06	*	< LOD	1.19 (1.10-1.32)	1.73 (1.51-1.97)	2.04 (1.67-2.51)	651
	07-08	*	< LOD	1.22 (1.02-1.35)	1.69 (1.43-2.12)	2.32 (1.75-2.85)	513
	09-10	*	< LOD	1.02 (<LOD-1.37)	1.65 (1.38-1.90)	2.02 (1.65-2.33)	618
Non-Hispanic blacks	03-04	*	< LOD	1.10 (<LOD-1.30)	1.80 (1.40-2.00)	2.20 (1.70-2.70)	725
	05-06	*	< LOD	1.02 (.950-1.07)	1.35 (1.29-1.44)	1.70 (1.50-1.88)	695
	07-08	*	< LOD	1.21 (1.09-1.33)	1.79 (1.61-2.05)	2.32 (2.15-2.63)	586
	09-10	*	< LOD	1.02 (<LOD-1.18)	1.51 (1.36-1.84)	1.88 (1.73-2.24)	546
Non-Hispanic whites	03-04	*	< LOD	1.10 (.900-1.30)	1.80 (1.40-2.00)	2.10 (1.80-2.50)	1077
	05-06	*	< LOD	1.22 (1.02-1.39)	1.75 (1.42-2.12)	2.14 (1.72-2.93)	1050
	07-08	*	< LOD	1.04 (.930-1.15)	1.50 (1.37-1.63)	1.91 (1.69-2.09)	1063
	09-10	*	< LOD	.940 (<LOD-1.04)	1.45 (1.24-1.76)	1.90 (1.65-2.12)	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.9, 0.9, 0.9, and 0.9 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Monomethylarsonic acid (2011 – 2014)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	1.36 (1.17-1.55)	1.83 (1.57-2.07)	2517
	13-14	.411 (.372-.454)	.460 (.390-.530)	.810 (.750-.870)	1.22 (1.11-1.33)	1.53 (1.36-1.74)	2654
Age group							
6-11 years	11-12	*	< LOD	< LOD	1.21 (.970-1.40)	1.42 (1.24-1.54)	401
	13-14	*	.380 (<LOD-.530)	.710 (.600-.850)	1.11 (.920-1.29)	1.47 (1.22-1.52)	397
12-19 years	11-12	*	< LOD	.900 (<LOD-1.09)	1.28 (1.09-1.57)	1.59 (1.26-3.30)	392
	13-14	.506 (.430-.596)	.580 (.480-.710)	.980 (.820-1.11)	1.28 (1.09-1.58)	1.58 (1.26-1.77)	450
20 years and older	11-12	*	< LOD	< LOD	1.41 (1.15-1.67)	1.88 (1.58-2.08)	1724
	13-14	.406 (.365-.450)	.450 (.370-.520)	.790 (.740-.850)	1.21 (1.10-1.33)	1.57 (1.36-1.79)	1807
Gender							
Males	11-12	*	< LOD	.950 (<LOD-1.14)	1.50 (1.26-1.85)	2.04 (1.79-2.40)	1264
	13-14	.456 (.408-.510)	.520 (.450-.600)	.900 (.850-.940)	1.26 (1.18-1.37)	1.57 (1.39-1.74)	1308
Females	11-12	*	< LOD	< LOD	1.15 (1.02-1.40)	1.57 (1.41-1.79)	1253
	13-14	.372 (.336-.412)	.400 (.300-.490)	.740 (.680-.770)	1.14 (.990-1.33)	1.49 (1.26-1.88)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	1.25 (1.04-1.65)	1.85 (1.25-3.26)	317
	13-14	.406 (.370-.446)	.470 (.380-.560)	.780 (.750-.860)	1.14 (1.01-1.27)	1.43 (1.17-1.69)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	1.26 (1.01-1.55)	1.65 (1.34-2.02)	672
	13-14	.446 (.400-.496)	.520 (.430-.600)	.820 (.750-.890)	1.23 (1.03-1.39)	1.55 (1.28-1.96)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.24 (1.03-1.49)	1.71 (1.34-2.04)	825
	13-14	.390 (.338-.451)	.430 (.320-.530)	.780 (.700-.860)	1.17 (1.04-1.31)	1.48 (1.22-1.81)	980
All Hispanics	11-12	*	< LOD	.960 (<LOD-1.25)	1.60 (1.32-1.99)	2.38 (1.65-3.29)	574
	13-14	.443 (.399-.491)	.520 (.460-.570)	.860 (.770-.950)	1.28 (1.08-1.49)	1.68 (1.32-1.76)	703
Asians	11-12	*	< LOD	1.32 (1.19-1.54)	2.09 (1.71-2.56)	2.76 (2.24-3.64)	356
	13-14	.499 (.445-.559)	.570 (.430-.660)	.980 (.790-1.23)	1.58 (1.42-1.80)	2.04 (1.72-2.65)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.89 and 0.2.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Monomethylarsonic acid (creatinine corrected) (2003 – 2010)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	1.33 (1.18-1.54)	2.22 (1.82-2.57)	2.86 (2.40-3.53)	2567
	05-06	*	< LOD	1.28 (1.14-1.52)	2.37 (1.94-2.78)	3.13 (2.67-3.76)	2588
	07-08	*	< LOD	1.31 (1.23-1.42)	2.24 (2.00-2.56)	3.19 (2.78-3.58)	2576
	09-10	*	< LOD	1.36 (1.25-1.45)	2.16 (2.00-2.29)	2.91 (2.67-3.15)	2870
Age group							
6-11 years	03-04	*	< LOD	1.63 (<LOD-1.81)	2.31 (1.88-2.50)	2.52 (2.31-3.07)	292
	05-06	*	< LOD	1.44 (<LOD-1.83)	2.37 (1.65-3.20)	3.13 (2.29-4.92)	354
	07-08	*	< LOD	1.69 (<LOD-2.06)	2.46 (2.09-2.91)	3.20 (2.56-4.32)	390
	09-10	*	< LOD	< LOD	2.37 (2.07-2.78)	3.16 (2.55-3.76)	379
12-19 years	03-04	*	< LOD	1.10 (.853-1.23)	1.53 (1.30-1.85)	2.07 (1.71-2.22)	728
	05-06	*	< LOD	1.05 (.930-1.14)	1.56 (1.49-1.73)	1.97 (1.78-2.13)	703
	07-08	*	< LOD	.970 (.880-1.07)	1.45 (1.19-1.73)	1.97 (1.49-2.34)	366
	09-10	*	< LOD	1.21 (1.02-1.45)	1.98 (1.60-2.56)	2.56 (1.94-4.57)	456
20 years and older	03-04	*	< LOD	1.36 (1.18-1.58)	2.28 (1.82-2.79)	3.00 (2.43-3.53)	1547
	05-06	*	< LOD	1.31 (1.13-1.58)	2.46 (2.00-2.91)	3.20 (2.78-3.81)	1531
	07-08	*	< LOD	1.32 (1.23-1.45)	2.35 (2.02-2.67)	3.38 (2.78-3.83)	1820
	09-10	*	< LOD	1.36 (1.25-1.45)	2.18 (2.00-2.29)	2.91 (2.78-3.20)	2035
Gender							
Males	03-04	*	< LOD	1.20 (1.05-1.36)	1.88 (1.53-2.34)	2.50 (2.07-3.45)	1283
	05-06	*	< LOD	1.11 (.950-1.28)	1.78 (1.47-2.29)	2.46 (1.88-3.32)	1276
	07-08	*	< LOD	1.18 (1.07-1.26)	2.06 (1.85-2.34)	2.71 (2.46-3.37)	1289
	09-10	*	< LOD	1.16 (1.07-1.25)	1.79 (1.64-1.99)	2.29 (2.08-2.78)	1402
Females	03-04	*	< LOD	1.50 (<LOD-1.77)	2.40 (1.96-2.86)	3.00 (2.61-3.53)	1284
	05-06	*	< LOD	1.58 (1.36-1.76)	2.78 (2.29-3.20)	3.56 (3.05-4.35)	1312
	07-08	*	< LOD	1.45 (<LOD-1.60)	2.41 (1.94-2.91)	3.56 (2.78-4.27)	1287
	09-10	*	< LOD	1.56 (<LOD-1.73)	2.46 (2.29-2.62)	3.37 (2.91-3.56)	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	1.46 (1.11-1.93)	2.30 (1.84-3.00)	3.16 (2.40-3.85)	621
	05-06	*	< LOD	1.19 (1.08-1.35)	1.92 (1.60-2.13)	2.53 (2.06-2.91)	651
	07-08	*	< LOD	1.28 (1.10-1.60)	2.27 (1.64-2.71)	3.05 (2.35-3.76)	513
	09-10	*	< LOD	1.31 (<LOD-1.49)	2.00 (1.73-2.56)	3.05 (2.29-3.56)	618
Non-Hispanic blacks	03-04	*	< LOD	.816 (<LOD-.985)	1.37 (1.14-1.61)	1.88 (1.46-2.17)	725
	05-06	*	< LOD	.790 (.720-.880)	1.11 (.980-1.34)	1.57 (1.23-1.98)	695
	07-08	*	< LOD	.920 (.840-1.06)	1.45 (1.33-1.73)	2.09 (1.73-2.56)	586
	09-10	*	< LOD	.970 (<LOD-1.08)	1.73 (1.39-1.94)	2.29 (1.83-2.91)	545
Non-Hispanic whites	03-04	*	< LOD	1.33 (1.15-1.62)	2.28 (1.73-2.86)	2.86 (2.35-3.75)	1077
	05-06	*	< LOD	1.35 (1.16-1.64)	2.50 (2.00-3.05)	3.20 (2.78-3.81)	1050
	07-08	*	< LOD	1.35 (1.23-1.52)	2.37 (2.04-2.78)	3.37 (2.78-4.00)	1063
	09-10	*	< LOD	1.36 (<LOD-1.52)	2.21 (1.99-2.37)	2.91 (2.67-3.20)	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Monomethylarsonic acid (creatinine corrected) (2011 – 2014)

Metabolite of Arsenic

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	2.21 (2.03-2.42)	2.86 (2.63-3.32)	2516
	13-14	.474 (.425-.527)	.489 (.424-.556)	.812 (.734-.904)	1.27 (1.17-1.40)	1.61 (1.45-1.84)	2653
Age group							
6-11 years	11-12	*	< LOD	< LOD	2.55 (2.17-3.15)	3.32 (2.52-4.50)	401
	13-14	*	.543 (<LOD-.667)	.933 (.700-1.15)	1.43 (1.08-1.87)	1.71 (1.44-2.22)	397
12-19 years	11-12	*	< LOD	1.07 (<LOD-1.24)	1.75 (1.30-2.42)	2.52 (1.62-7.00)	392
	13-14	.459 (.397-.530)	.462 (.362-.603)	.727 (.634-.848)	1.10 (.877-1.50)	1.51 (1.11-2.00)	450
20 years and older	11-12	*	< LOD	< LOD	2.25 (2.00-2.42)	2.74 (2.52-3.32)	1723
	13-14	.471 (.423-.524)	.488 (.424-.545)	.815 (.740-.900)	1.28 (1.18-1.38)	1.62 (1.44-1.82)	1806
Gender							
Males	11-12	*	< LOD	1.13 (<LOD-1.24)	1.72 (1.58-1.85)	2.31 (1.92-2.67)	1263
	13-14	.456 (.413-.504)	.475 (.421-.535)	.772 (.695-.851)	1.20 (1.09-1.30)	1.56 (1.38-1.69)	1307
Females	11-12	*	< LOD	< LOD	2.52 (2.27-2.74)	3.32 (2.74-3.94)	1253
	13-14	.491 (.435-.555)	.500 (.424-.583)	.842 (.741-1.00)	1.33 (1.18-1.46)	1.68 (1.41-2.08)	1346
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	1.95 (1.54-2.25)	2.63 (1.85-3.32)	317
	13-14	.463 (.409-.524)	.488 (.438-.554)	.743 (.674-.850)	1.20 (1.01-1.33)	1.49 (1.31-1.66)	455
Non-Hispanic blacks	11-12	*	< LOD	< LOD	1.38 (1.21-1.62)	1.97 (1.75-2.33)	672
	13-14	.336 (.296-.382)	.329 (.294-.392)	.557 (.486-.631)	.806 (.735-.910)	1.06 (.910-1.25)	576
Non-Hispanic whites	11-12	*	< LOD	< LOD	2.33 (2.03-2.52)	2.86 (2.52-3.50)	824
	13-14	.481 (.423-.546)	.495 (.418-.568)	.824 (.733-.933)	1.25 (1.10-1.42)	1.56 (1.36-1.84)	979
All Hispanics	11-12	*	< LOD	1.34 (<LOD-1.48)	2.02 (1.62-2.52)	2.63 (1.97-3.50)	574
	13-14	.494 (.446-.548)	.520 (.467-.586)	.819 (.713-.931)	1.31 (1.18-1.50)	1.71 (1.49-1.97)	703
Asians	11-12	*	< LOD	2.06 (1.63-2.33)	3.07 (2.69-3.68)	4.50 (3.43-5.09)	356
	13-14	.777 (.667-.906)	.800 (.623-1.04)	1.33 (1.08-1.61)	1.94 (1.56-2.53)	2.54 (2.00-3.16)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Trimethylarsine oxide (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2871
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	380
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1403
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	546
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 1.0, 1.0, 1.0, and 1.0 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Trimethylarsine oxide (2011 – 2012)‡

Geometric mean and selected percentiles of urine concentrations (in µg As/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2517
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	.300 (<LOD-.960)	401
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1724
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1264
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	825
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Trimethylarsine oxide (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2568
	05-06	*	< LOD	< LOD	< LOD	< LOD	2588
	07-08	*	< LOD	< LOD	< LOD	< LOD	2576
	09-10	*	< LOD	< LOD	< LOD	< LOD	2870
Age group							
6-11 years	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	354
	07-08	*	< LOD	< LOD	< LOD	< LOD	390
	09-10	*	< LOD	< LOD	< LOD	< LOD	379
12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	728
	05-06	*	< LOD	< LOD	< LOD	< LOD	703
	07-08	*	< LOD	< LOD	< LOD	< LOD	366
	09-10	*	< LOD	< LOD	< LOD	< LOD	456
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1548
	05-06	*	< LOD	< LOD	< LOD	< LOD	1531
	07-08	*	< LOD	< LOD	< LOD	< LOD	1820
	09-10	*	< LOD	< LOD	< LOD	< LOD	2035
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1276
	07-08	*	< LOD	< LOD	< LOD	< LOD	1289
	09-10	*	< LOD	< LOD	< LOD	< LOD	1402
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1284
	05-06	*	< LOD	< LOD	< LOD	< LOD	1312
	07-08	*	< LOD	< LOD	< LOD	< LOD	1287
	09-10	*	< LOD	< LOD	< LOD	< LOD	1468
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	621
	05-06	*	< LOD	< LOD	< LOD	< LOD	651
	07-08	*	< LOD	< LOD	< LOD	< LOD	513
	09-10	*	< LOD	< LOD	< LOD	< LOD	618
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	695
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	545
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	1078
	05-06	*	< LOD	< LOD	< LOD	< LOD	1050
	07-08	*	< LOD	< LOD	< LOD	< LOD	1063
	09-10	*	< LOD	< LOD	< LOD	< LOD	1226

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Trimethylarsine oxide (creatinine corrected) (2011 – 2012)‡

Geometric mean and selected percentiles of urine concentrations (in µg As/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2516
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	1.06 (<LOD-1.39)	401
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	392
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1723
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1263
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1253
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	317
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	672
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	824
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	574
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	356

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Arsenic_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Arsenic_FactSheet.html

Urinary Barium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.50 (1.35-1.66)	1.60 (1.50-1.90)	3.10 (2.70-3.40)	5.40 (4.60-6.10)	6.90 (6.20-8.40)	2180
	01-02	1.52 (1.41-1.65)	1.63 (1.50-1.76)	3.12 (2.77-3.51)	5.24 (4.73-5.84)	7.48 (6.54-8.12)	2690
	03-04	1.49 (1.36-1.64)	1.51 (1.35-1.72)	2.91 (2.64-3.28)	5.36 (4.86-5.71)	7.54 (6.93-8.63)	2558
	05-06	1.52 (1.39-1.66)	1.58 (1.44-1.70)	2.99 (2.63-3.41)	5.34 (4.82-5.83)	7.10 (6.46-8.18)	2576
	07-08	1.56 (1.45-1.69)	1.64 (1.49-1.80)	3.01 (2.72-3.34)	4.93 (4.39-5.69)	7.04 (6.07-8.20)	2627
	09-10	1.47 (1.34-1.60)	1.48 (1.35-1.62)	2.81 (2.52-3.06)	4.66 (4.34-5.35)	6.78 (5.86-7.76)	2848
Age group							
6-11 years	99-00	2.15 (1.70-2.72)	2.20 (1.90-2.50)	4.00 (2.60-6.10)	6.40 (5.20-8.30)	8.30 (5.00-76.2)	297
	01-02	1.80 (1.44-2.26)	2.09 (1.74-2.49)	3.63 (2.86-4.39)	5.37 (4.26-7.38)	6.88 (5.37-8.49)	368
	03-04	2.21 (1.81-2.71)	2.50 (1.81-2.75)	4.76 (3.80-5.65)	8.63 (5.59-11.8)	11.8 (6.87-14.8)	290
	05-06	1.73 (1.53-1.97)	1.87 (1.61-2.03)	3.55 (2.41-4.30)	6.21 (4.30-7.32)	7.72 (6.26-8.92)	355
	07-08	1.75 (1.50-2.04)	1.86 (1.58-2.23)	3.41 (2.85-3.79)	5.57 (4.49-6.59)	7.32 (5.71-9.18)	394
	09-10	1.49 (1.28-1.74)	1.50 (1.22-1.68)	2.72 (2.19-3.13)	4.63 (4.02-5.37)	6.59 (5.24-7.72)	378
12-19 years	99-00	1.97 (1.78-2.19)	2.00 (1.70-2.30)	3.50 (3.10-4.00)	5.90 (4.80-7.00)	9.70 (5.90-13.1)	621
	01-02	2.03 (1.76-2.34)	2.27 (1.96-2.53)	4.11 (3.48-4.72)	6.73 (5.55-7.87)	9.02 (7.25-11.4)	762
	03-04	2.16 (1.93-2.41)	2.35 (2.06-2.63)	4.11 (3.48-4.71)	7.18 (6.00-8.29)	9.63 (8.15-11.4)	725
	05-06	2.16 (1.92-2.42)	2.33 (1.99-2.56)	3.80 (3.60-4.21)	6.35 (5.48-7.49)	8.24 (6.06-10.5)	701
	07-08	2.18 (1.99-2.39)	2.31 (2.07-2.59)	3.62 (3.34-4.10)	6.19 (4.75-7.51)	8.20 (6.22-11.1)	376
	09-10	1.79 (1.52-2.09)	1.90 (1.46-2.45)	3.25 (2.82-4.14)	5.43 (4.45-6.07)	6.87 (5.73-8.16)	451
20 years and older	99-00	1.36 (1.24-1.51)	1.50 (1.30-1.70)	2.80 (2.60-3.20)	5.10 (4.30-5.50)	6.40 (5.70-8.40)	1262
	01-02	1.43 (1.32-1.54)	1.50 (1.39-1.65)	2.85 (2.55-3.27)	4.86 (4.53-5.47)	7.14 (6.08-8.12)	1560
	03-04	1.34 (1.20-1.50)	1.39 (1.19-1.56)	2.54 (2.21-2.91)	4.61 (3.99-5.30)	6.61 (5.57-7.43)	1543
	05-06	1.42 (1.28-1.57)	1.43 (1.28-1.63)	2.75 (2.47-3.11)	5.12 (4.45-5.81)	6.83 (6.14-7.90)	1520
	07-08	1.46 (1.35-1.58)	1.51 (1.39-1.67)	2.79 (2.54-3.15)	4.61 (4.19-5.42)	6.80 (5.50-8.37)	1857
	09-10	1.42 (1.30-1.55)	1.43 (1.31-1.58)	2.67 (2.36-3.02)	4.58 (4.22-5.14)	6.80 (5.70-8.63)	2019
Gender							
Males	99-00	1.70 (1.54-1.88)	1.90 (1.80-2.00)	3.20 (3.00-3.60)	5.50 (4.20-6.70)	7.50 (5.90-9.70)	1083
	01-02	1.64 (1.47-1.82)	1.80 (1.65-1.98)	3.15 (2.76-3.73)	5.52 (4.82-6.35)	7.87 (6.49-9.32)	1335
	03-04	1.62 (1.47-1.78)	1.69 (1.49-1.85)	3.09 (2.81-3.54)	5.65 (5.14-6.16)	8.56 (6.71-9.67)	1281
	05-06	1.66 (1.48-1.85)	1.71 (1.50-1.94)	3.21 (2.76-3.79)	5.48 (4.68-6.22)	7.10 (6.18-8.84)	1271
	07-08	1.62 (1.48-1.77)	1.80 (1.57-1.93)	3.14 (2.79-3.42)	5.00 (4.31-5.70)	6.84 (5.83-7.72)	1327
	09-10	1.53 (1.35-1.74)	1.57 (1.36-1.82)	3.01 (2.53-3.36)	4.83 (4.25-5.77)	6.81 (5.77-8.76)	1398
Females	99-00	1.33 (1.15-1.53)	1.50 (1.20-1.60)	2.80 (2.30-3.30)	5.20 (4.20-5.90)	6.80 (5.60-10.4)	1097
	01-02	1.43 (1.30-1.56)	1.44 (1.29-1.63)	3.11 (2.74-3.43)	4.93 (4.44-5.88)	7.15 (6.32-7.86)	1355
	03-04	1.38 (1.24-1.54)	1.39 (1.18-1.57)	2.71 (2.41-3.15)	4.95 (4.29-5.51)	6.87 (5.65-8.10)	1277
	05-06	1.40 (1.27-1.54)	1.42 (1.30-1.63)	2.70 (2.39-3.19)	5.21 (4.65-5.71)	7.09 (6.24-7.94)	1305
	07-08	1.51 (1.36-1.68)	1.54 (1.38-1.70)	2.84 (2.52-3.37)	4.87 (4.23-6.13)	7.18 (5.94-8.83)	1300
	09-10	1.40 (1.30-1.51)	1.38 (1.31-1.47)	2.61 (2.41-2.90)	4.58 (4.33-4.95)	6.59 (5.37-7.86)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.12, 0.12, 0.31, 0.12, 0.12, and 0.12 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Barium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.35 (1.25-1.46)	1.40 (1.20-1.50)	2.60 (2.30-2.90)	4.50 (4.10-5.30)	6.30 (5.50-6.80)	692
	01-02	1.21 (1.06-1.37)	1.25 (1.11-1.46)	2.56 (2.04-2.91)	4.35 (3.65-5.49)	6.43 (5.21-8.22)	683
	03-04	1.40 (1.15-1.70)	1.45 (1.22-1.73)	2.62 (1.78-3.38)	4.07 (2.95-6.37)	6.01 (4.01-7.88)	618
	05-06	1.33 (1.24-1.42)	1.36 (1.22-1.50)	2.63 (2.35-2.89)	4.47 (3.80-5.23)	6.21 (5.23-7.00)	652
	07-08	1.33 (1.16-1.53)	1.37 (1.19-1.48)	2.60 (2.29-2.84)	4.21 (3.53-4.90)	5.79 (4.90-8.00)	515
	09-10	1.24 (1.07-1.45)	1.18 (1.05-1.40)	2.25 (1.88-2.71)	4.15 (3.55-5.40)	6.35 (5.00-8.75)	613
Non-Hispanic blacks	99-00	1.34 (1.12-1.62)	1.40 (1.20-1.60)	2.50 (2.30-2.90)	5.10 (3.70-6.60)	7.40 (5.40-13.9)	540
	01-02	1.30 (1.14-1.48)	1.42 (1.22-1.62)	2.61 (2.31-2.82)	4.30 (3.70-5.18)	5.99 (4.87-7.26)	667
	03-04	1.27 (1.17-1.39)	1.38 (1.26-1.48)	2.34 (2.05-2.59)	3.77 (3.35-4.36)	5.86 (4.76-7.45)	723
	05-06	1.25 (1.15-1.37)	1.31 (1.21-1.41)	2.40 (2.22-2.61)	4.24 (3.69-4.83)	6.19 (5.23-6.96)	692
	07-08	1.17 (1.07-1.28)	1.23 (1.12-1.37)	2.14 (2.01-2.34)	3.70 (3.27-4.00)	5.00 (3.93-5.90)	589
	09-10	1.22 (1.08-1.38)	1.22 (1.07-1.38)	2.13 (1.91-2.51)	3.76 (3.09-4.88)	5.50 (4.06-7.32)	544
Non-Hispanic whites	99-00	1.56 (1.36-1.80)	1.80 (1.60-2.00)	3.30 (2.80-3.70)	5.50 (4.50-6.30)	7.50 (6.20-8.80)	765
	01-02	1.61 (1.46-1.77)	1.68 (1.54-1.85)	3.31 (2.87-3.74)	5.66 (4.94-6.30)	7.73 (6.61-8.49)	1132
	03-04	1.56 (1.37-1.78)	1.61 (1.28-1.92)	3.12 (2.75-3.70)	5.57 (5.04-6.43)	8.08 (6.87-9.53)	1074
	05-06	1.59 (1.42-1.78)	1.66 (1.50-1.86)	3.08 (2.63-3.79)	5.50 (4.90-6.08)	7.10 (6.46-8.24)	1041
	07-08	1.71 (1.55-1.88)	1.82 (1.62-1.97)	3.36 (2.91-3.71)	5.38 (4.51-6.30)	7.18 (6.22-9.05)	1095
	09-10	1.56 (1.42-1.73)	1.60 (1.40-1.76)	3.00 (2.64-3.36)	4.89 (4.48-5.84)	7.16 (6.12-9.31)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.12, 0.12, 0.31, 0.12, 0.12, and 0.12 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Barium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.19 (1.11-1.28)	1.23 (1.14-1.33)	2.40 (2.24-2.54)	4.04 (3.76-4.35)	5.52 (4.92-5.95)	2504
	13-14	1.09 (1.03-1.16)	1.10 (.980-1.21)	2.17 (2.05-2.31)	4.01 (3.61-4.28)	5.67 (5.29-6.09)	2664
Age group							
6-11 years	11-12	1.39 (1.24-1.55)	1.46 (1.21-1.62)	2.96 (2.33-3.52)	4.92 (4.52-5.29)	6.68 (5.25-7.92)	399
	13-14	1.13 (.962-1.33)	1.20 (.970-1.43)	2.06 (1.73-2.64)	3.48 (2.64-5.02)	5.02 (2.96-9.85)	402
12-19 years	11-12	1.52 (1.25-1.84)	1.61 (1.24-1.90)	2.98 (2.40-4.03)	5.37 (4.27-6.08)	6.63 (5.53-8.77)	390
	13-14	1.43 (1.19-1.70)	1.49 (1.10-1.75)	2.78 (2.23-3.49)	5.67 (4.18-6.69)	6.92 (6.14-8.11)	451
20 years and older	11-12	1.13 (1.06-1.21)	1.19 (1.09-1.27)	2.24 (2.09-2.44)	3.74 (3.39-4.01)	5.05 (4.37-5.78)	1715
	13-14	1.05 (.989-1.11)	1.03 (.930-1.16)	2.13 (1.93-2.31)	3.88 (3.33-4.25)	5.60 (4.78-5.96)	1811
Gender							
Males	11-12	1.29 (1.20-1.38)	1.30 (1.24-1.41)	2.52 (2.25-2.71)	4.29 (3.74-4.58)	5.96 (4.49-7.35)	1262
	13-14	1.20 (1.10-1.31)	1.24 (1.05-1.43)	2.38 (2.09-2.68)	4.27 (3.76-4.95)	5.96 (5.60-6.69)	1318
Females	11-12	1.11 (.989-1.25)	1.14 (1.00-1.35)	2.33 (2.06-2.57)	3.90 (3.34-4.35)	5.13 (4.44-5.57)	1242
	13-14	.998 (.940-1.06)	.980 (.870-1.12)	2.03 (1.85-2.19)	3.66 (3.21-4.07)	5.19 (4.42-5.74)	1346
Race/ethnicity							
Mexican Americans	11-12	1.08 (.961-1.22)	1.06 (.910-1.23)	2.10 (1.79-2.57)	3.95 (3.24-4.86)	5.58 (4.10-7.22)	317
	13-14	.938 (.853-1.03)	.870 (.760-1.02)	2.00 (1.61-2.25)	3.15 (2.84-3.53)	4.19 (3.48-4.95)	453
Non-Hispanic blacks	11-12	.997 (.891-1.12)	1.05 (.910-1.20)	2.08 (1.79-2.29)	3.63 (3.09-4.08)	4.68 (4.02-5.19)	669
	13-14	.947 (.865-1.04)	.940 (.860-1.06)	1.81 (1.59-2.08)	3.48 (2.94-4.01)	4.50 (3.92-5.95)	581
Non-Hispanic whites	11-12	1.27 (1.17-1.38)	1.32 (1.22-1.43)	2.50 (2.25-2.71)	4.33 (3.63-4.81)	5.57 (4.87-6.35)	820
	13-14	1.18 (1.10-1.26)	1.20 (1.05-1.35)	2.32 (2.16-2.53)	4.27 (3.74-4.94)	5.99 (5.57-6.44)	985
All Hispanics	11-12	1.08 (.970-1.19)	1.07 (.940-1.23)	2.15 (1.86-2.47)	3.74 (2.99-4.34)	4.82 (3.96-5.98)	573
	13-14	.927 (.840-1.03)	.890 (.760-1.05)	1.92 (1.72-2.14)	3.15 (2.84-3.53)	4.25 (3.60-4.82)	701
Asians	11-12	1.16 (1.03-1.30)	1.21 (1.02-1.35)	2.28 (1.94-2.67)	3.90 (3.20-4.47)	5.50 (4.01-6.40)	353
	13-14	.962 (.831-1.12)	.920 (.790-1.13)	1.93 (1.47-2.33)	3.79 (2.95-4.75)	5.67 (4.19-6.61)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.06.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Barium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.40 (1.26-1.56)	1.41 (1.28-1.54)	2.54 (2.20-2.91)	4.68 (3.85-5.47)	6.33 (5.47-8.09)	2180
	01-02	1.44 (1.31-1.58)	1.49 (1.35-1.63)	2.76 (2.51-3.03)	4.58 (4.15-4.96)	6.24 (5.28-7.27)	2689
	03-04	1.48 (1.37-1.60)	1.41 (1.31-1.58)	2.68 (2.44-2.89)	4.92 (4.39-5.45)	7.10 (6.29-7.77)	2558
	05-06	1.50 (1.40-1.61)	1.48 (1.37-1.61)	2.75 (2.50-3.03)	4.65 (4.09-5.10)	6.38 (5.62-7.56)	2576
	07-08	1.63 (1.51-1.75)	1.60 (1.51-1.72)	2.92 (2.72-3.16)	4.85 (4.40-5.57)	7.20 (5.94-8.59)	2627
	09-10	1.56 (1.45-1.68)	1.55 (1.42-1.64)	2.72 (2.54-2.97)	4.69 (4.12-5.16)	6.24 (5.60-7.43)	2848
Age group 6-11 years	99-00	2.37 (1.68-3.32)	2.38 (1.84-2.92)	4.47 (2.55-6.46)	10.2 (3.75-22.0)	11.4 (5.46-22.0)	297
	01-02	2.20 (1.91-2.52)	2.41 (2.19-2.83)	3.91 (3.29-4.51)	5.01 (4.58-6.00)	6.71 (5.20-8.47)	368
	03-04	2.58 (2.22-2.99)	3.00 (2.35-3.29)	4.45 (3.57-5.54)	6.69 (5.59-7.70)	10.3 (6.53-21.0)	290
	05-06	2.14 (1.85-2.48)	2.15 (1.76-2.51)	3.83 (3.10-4.73)	6.19 (4.84-7.83)	10.0 (5.76-11.1)	355
	07-08	2.28 (2.04-2.54)	2.41 (2.05-2.59)	4.43 (3.87-4.70)	6.58 (5.05-9.46)	9.89 (7.13-13.3)	394
	09-10	2.03 (1.78-2.30)	2.00 (1.77-2.40)	3.33 (2.81-3.79)	5.04 (4.17-7.39)	8.76 (5.93-10.8)	378
12-19 years	99-00	1.51 (1.34-1.70)	1.40 (1.26-1.59)	2.48 (1.97-3.06)	4.36 (3.23-5.39)	7.62 (4.24-11.4)	621
	01-02	1.45 (1.33-1.59)	1.56 (1.31-1.77)	2.89 (2.68-3.12)	4.52 (3.84-5.20)	5.55 (4.81-6.10)	762
	03-04	1.54 (1.36-1.75)	1.59 (1.39-1.87)	2.60 (2.24-3.48)	4.97 (4.34-5.58)	6.47 (5.38-7.77)	725
	05-06	1.66 (1.50-1.84)	1.73 (1.52-1.93)	3.15 (2.76-3.42)	4.25 (3.88-4.56)	5.00 (4.46-6.68)	701
	07-08	1.71 (1.52-1.92)	1.70 (1.48-1.96)	3.03 (2.51-3.65)	4.80 (3.96-5.47)	6.17 (4.80-8.12)	376
	09-10	1.67 (1.48-1.88)	1.66 (1.54-1.84)	2.69 (2.24-3.18)	3.98 (3.40-5.29)	6.42 (4.61-9.33)	451
20 years and older	99-00	1.30 (1.19-1.42)	1.33 (1.20-1.46)	2.32 (2.08-2.62)	4.29 (3.63-4.96)	5.65 (5.28-6.33)	1262
	01-02	1.37 (1.24-1.50)	1.40 (1.24-1.52)	2.53 (2.23-2.84)	4.38 (4.02-5.00)	6.55 (5.00-7.64)	1559
	03-04	1.38 (1.26-1.50)	1.32 (1.22-1.41)	2.39 (2.13-2.70)	4.39 (3.77-5.16)	7.00 (5.45-8.50)	1543
	05-06	1.42 (1.30-1.54)	1.39 (1.26-1.55)	2.59 (2.33-2.82)	4.53 (3.65-5.40)	6.34 (5.37-7.67)	1520
	07-08	1.56 (1.44-1.69)	1.55 (1.40-1.66)	2.80 (2.55-3.04)	4.64 (4.05-5.43)	7.20 (5.78-8.65)	1857
	09-10	1.50 (1.40-1.61)	1.46 (1.38-1.55)	2.67 (2.42-2.92)	4.71 (4.07-5.23)	6.03 (5.53-7.34)	2019
Gender Males	99-00	1.32 (1.22-1.42)	1.36 (1.23-1.47)	2.39 (2.11-2.57)	4.24 (3.48-5.00)	5.61 (4.39-10.2)	1083
	01-02	1.30 (1.16-1.45)	1.34 (1.19-1.50)	2.46 (2.14-2.83)	4.51 (3.73-4.96)	5.42 (4.81-7.51)	1334
	03-04	1.36 (1.26-1.47)	1.31 (1.19-1.43)	2.60 (2.37-2.75)	4.36 (3.97-4.72)	6.01 (5.45-6.96)	1281
	05-06	1.36 (1.23-1.50)	1.38 (1.25-1.52)	2.36 (2.19-2.73)	4.24 (3.65-4.82)	5.69 (4.75-7.36)	1271
	07-08	1.45 (1.34-1.55)	1.50 (1.32-1.60)	2.59 (2.34-2.79)	4.30 (3.84-4.72)	5.56 (5.05-6.30)	1327
	09-10	1.40 (1.28-1.52)	1.38 (1.29-1.50)	2.39 (2.13-2.68)	4.05 (3.52-4.71)	5.55 (4.89-6.77)	1398
Females	99-00	1.49 (1.27-1.74)	1.48 (1.29-1.68)	2.65 (2.13-3.46)	4.91 (3.96-6.38)	7.36 (5.25-11.3)	1097
	01-02	1.59 (1.45-1.75)	1.64 (1.48-1.79)	2.98 (2.75-3.30)	4.76 (4.38-5.31)	6.97 (5.86-7.52)	1355
	03-04	1.60 (1.45-1.77)	1.55 (1.35-1.73)	2.78 (2.34-3.25)	5.50 (4.43-6.86)	7.88 (6.28-11.5)	1277
	05-06	1.65 (1.54-1.76)	1.63 (1.45-1.83)	3.09 (2.71-3.38)	4.87 (4.48-5.65)	7.48 (6.04-10.0)	1305
	07-08	1.83 (1.63-2.05)	1.74 (1.52-2.06)	3.22 (2.82-3.89)	5.94 (4.57-7.38)	8.15 (7.18-9.49)	1300
	09-10	1.73 (1.60-1.87)	1.71 (1.62-1.86)	3.06 (2.72-3.41)	5.06 (4.59-5.74)	6.58 (5.88-8.19)	1450

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Barium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.21 (1.10-1.33)	1.18 (1.05-1.38)	2.39 (2.10-2.59)	4.00 (3.33-4.80)	5.31 (4.80-6.51)	692
	01-02	1.18 (1.03-1.34)	1.16 (1.00-1.38)	2.33 (1.90-2.61)	3.68 (3.29-4.10)	4.96 (4.24-6.80)	682
	03-04	1.29 (1.08-1.55)	1.28 (1.03-1.53)	2.25 (1.73-2.97)	3.99 (2.79-5.03)	4.99 (4.24-6.56)	618
	05-06	1.25 (1.17-1.33)	1.21 (1.09-1.33)	2.27 (1.84-2.61)	3.66 (3.07-4.35)	5.11 (4.00-5.95)	652
	07-08	1.33 (1.16-1.53)	1.28 (1.14-1.49)	2.40 (1.87-2.90)	4.23 (3.45-4.87)	6.18 (4.75-7.27)	515
	09-10	1.30 (1.18-1.44)	1.26 (1.14-1.41)	2.33 (1.98-2.79)	3.55 (3.11-4.42)	5.50 (4.27-6.58)	613
Non-Hispanic blacks	99-00	.881 (.703-1.11)	.905 (.710-1.06)	1.64 (1.36-2.00)	3.27 (2.26-4.76)	4.84 (3.57-10.8)	540
	01-02	.891 (.777-1.02)	.921 (.754-1.11)	1.64 (1.44-2.03)	2.86 (2.48-3.37)	4.02 (3.52-4.68)	667
	03-04	.915 (.832-1.01)	.963 (.880-1.04)	1.51 (1.39-1.75)	2.62 (2.29-3.04)	3.76 (3.22-4.72)	723
	05-06	.909 (.845-.979)	.880 (.820-.970)	1.78 (1.56-1.97)	2.99 (2.63-3.14)	3.91 (3.39-4.73)	692
	07-08	.858 (.807-.913)	.850 (.790-.920)	1.53 (1.34-1.61)	2.51 (2.01-3.03)	3.43 (2.83-5.05)	589
	09-10	.965 (.853-1.09)	.930 (.860-1.05)	1.63 (1.40-1.85)	2.92 (2.33-3.34)	3.71 (3.24-4.69)	544
Non-Hispanic whites	99-00	1.56 (1.38-1.77)	1.55 (1.36-1.74)	2.72 (2.27-3.24)	5.00 (3.81-6.02)	6.60 (5.52-10.2)	765
	01-02	1.62 (1.49-1.76)	1.66 (1.49-1.82)	3.04 (2.76-3.32)	4.96 (4.55-5.41)	6.74 (5.57-7.64)	1132
	03-04	1.64 (1.49-1.82)	1.60 (1.40-1.76)	2.88 (2.56-3.26)	5.38 (4.67-6.28)	7.57 (6.69-9.27)	1074
	05-06	1.65 (1.52-1.80)	1.61 (1.46-1.83)	2.95 (2.70-3.26)	4.82 (4.32-5.65)	7.21 (5.69-8.51)	1041
	07-08	1.91 (1.74-2.10)	1.85 (1.65-2.09)	3.22 (2.84-3.76)	5.42 (4.55-6.91)	7.81 (6.33-9.45)	1095
	09-10	1.75 (1.59-1.92)	1.70 (1.58-1.86)	2.99 (2.67-3.33)	5.00 (4.14-5.69)	6.63 (5.69-8.50)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Barium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.35 (1.24-1.48)	1.38 (1.27-1.47)	2.44 (2.10-2.84)	4.19 (3.72-4.85)	6.27 (5.20-6.66)	2502
	13-14	1.26 (1.19-1.34)	1.24 (1.13-1.38)	2.33 (2.18-2.50)	4.06 (3.75-4.26)	5.59 (5.02-6.06)	2663
Age group							
6-11 years	11-12	1.99 (1.80-2.19)	2.18 (1.70-2.61)	3.72 (3.35-4.03)	5.82 (4.95-6.45)	6.78 (5.98-8.18)	398
	13-14	1.69 (1.39-2.05)	1.61 (1.24-2.20)	3.10 (2.29-3.80)	5.24 (3.54-7.57)	6.62 (5.03-9.83)	402
12-19 years	11-12	1.45 (1.24-1.70)	1.42 (1.24-1.78)	2.81 (1.96-3.19)	4.90 (3.82-5.69)	6.29 (4.90-6.57)	390
	13-14	1.29 (1.18-1.42)	1.36 (1.20-1.59)	2.33 (2.12-2.64)	3.69 (3.24-4.20)	4.80 (4.09-5.05)	451
20 years and older	11-12	1.29 (1.17-1.41)	1.31 (1.20-1.43)	2.21 (1.95-2.63)	3.83 (3.50-4.31)	5.54 (4.38-6.84)	1714
	13-14	1.22 (1.16-1.29)	1.18 (1.10-1.28)	2.23 (2.04-2.43)	4.00 (3.69-4.31)	5.59 (5.00-6.11)	1810
Gender							
Males	11-12	1.20 (1.10-1.32)	1.17 (1.08-1.33)	2.09 (1.85-2.53)	3.72 (3.37-4.22)	5.35 (4.11-6.34)	1261
	13-14	1.20 (1.13-1.28)	1.16 (1.09-1.30)	2.26 (1.97-2.48)	3.80 (3.39-4.28)	4.79 (4.42-5.24)	1317
Females	11-12	1.51 (1.36-1.68)	1.51 (1.39-1.67)	2.73 (2.39-3.12)	4.83 (3.88-5.63)	6.52 (5.32-8.33)	1241
	13-14	1.32 (1.23-1.43)	1.33 (1.17-1.52)	2.42 (2.18-2.72)	4.24 (3.96-4.60)	6.23 (5.29-8.04)	1346
Race/ethnicity							
Mexican Americans	11-12	1.22 (1.09-1.36)	1.16 (1.02-1.31)	2.20 (1.82-2.71)	4.00 (3.08-4.84)	5.74 (3.94-7.90)	317
	13-14	1.07 (.985-1.16)	1.02 (.943-1.13)	1.88 (1.68-2.19)	3.53 (2.78-4.32)	4.76 (4.28-5.62)	453
Non-Hispanic blacks	11-12	.775 (.698-.861)	.744 (.664-.918)	1.48 (1.32-1.64)	2.64 (2.24-3.06)	3.56 (3.21-3.86)	669
	13-14	.721 (.660-.786)	.717 (.657-.790)	1.31 (1.18-1.49)	2.42 (1.95-2.85)	3.26 (2.85-4.46)	581
Non-Hispanic whites	11-12	1.54 (1.38-1.70)	1.53 (1.44-1.64)	2.71 (2.18-3.18)	4.71 (3.82-5.54)	6.45 (5.36-7.63)	818
	13-14	1.45 (1.38-1.52)	1.46 (1.27-1.63)	2.59 (2.45-2.87)	4.31 (3.99-4.59)	6.06 (5.03-6.79)	984
All Hispanics	11-12	1.21 (1.09-1.34)	1.19 (1.09-1.28)	2.20 (1.81-2.70)	3.70 (3.10-4.66)	5.17 (3.73-6.49)	573
	13-14	1.04 (.960-1.12)	1.01 (.935-1.10)	1.86 (1.68-2.00)	3.15 (2.78-3.64)	4.52 (3.76-5.32)	701
Asians	11-12	1.55 (1.40-1.71)	1.49 (1.35-1.73)	2.86 (2.34-3.33)	5.03 (4.00-5.95)	7.26 (5.03-9.71)	353
	13-14	1.51 (1.34-1.69)	1.56 (1.19-1.82)	2.79 (2.37-3.21)	4.42 (3.96-5.51)	6.27 (4.99-8.05)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Barium_BiomonitoringSummary.html

Urinary Beryllium (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2690
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	< LOD	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	< LOD	2848
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	355
	07-08	*	< LOD	< LOD	< LOD	< LOD	394
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	.140 (<LOD-.170)	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
	09-10	*	< LOD	< LOD	< LOD	< LOD	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1560
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	< LOD	2019
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	.130 (<LOD-.150)	1335
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	< LOD	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	< LOD	1398
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	< LOD	< LOD	1305
	07-08	*	< LOD	< LOD	< LOD	< LOD	1300
	09-10	*	< LOD	< LOD	< LOD	< LOD	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.13, 0.13, 0.13, 0.072, 0.072, and 0.072 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html

Urinary Beryllium (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	.130 (<LOD-.160)	683
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	< LOD	652
	07-08	*	< LOD	< LOD	< LOD	< LOD	515
	09-10	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	< LOD	692
	07-08	*	< LOD	< LOD	< LOD	< LOD	589
	09-10	*	< LOD	< LOD	< LOD	< LOD	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	< LOD	1041
	07-08	*	< LOD	< LOD	< LOD	< LOD	1095
	09-10	*	< LOD	< LOD	< LOD	< LOD	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.13, 0.13, 0.13, 0.072, 0.072, and 0.072 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html

Urinary Beryllium (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2689
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	< LOD	< LOD	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	< LOD	2848
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	< LOD	< LOD	355
	07-08	*	< LOD	< LOD	< LOD	< LOD	394
	09-10	*	< LOD	< LOD	< LOD	< LOD	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	.231 (<LOD-.273)	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	< LOD	701
	07-08	*	< LOD	< LOD	< LOD	< LOD	376
	09-10	*	< LOD	< LOD	< LOD	< LOD	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1559
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	< LOD	< LOD	2019
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	.281 (<LOD-.333)	1334
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	< LOD	< LOD	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	< LOD	< LOD	1398
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	< LOD	< LOD	1305
	07-08	*	< LOD	< LOD	< LOD	< LOD	1300
	09-10	*	< LOD	< LOD	< LOD	< LOD	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html

Urinary Beryllium (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	.346 (<LOD-.391)	682
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	< LOD	< LOD	652
	07-08	*	< LOD	< LOD	< LOD	< LOD	515
	09-10	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	< LOD	692
	07-08	*	< LOD	< LOD	< LOD	< LOD	589
	09-10	*	< LOD	< LOD	< LOD	< LOD	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	< LOD	< LOD	1041
	07-08	*	< LOD	< LOD	< LOD	< LOD	1095
	09-10	*	< LOD	< LOD	< LOD	< LOD	1225

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Beryllium_BiomonitoringSummary.html

Blood Cadmium (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.412 (.378-.449)	.400 (.300-.400)	.600 (.500-.700)	1.00 (1.00-1.10)	1.40 (1.30-1.40)	7970
	01-02	*	.300 (.300-.400)	.500 (.500-.600)	1.00 (.900-1.10)	1.40 (1.20-1.70)	8945
	03-04	.304 (.289-.320)	.300 (.300-.300)	.500 (.500-.600)	1.10 (1.00-1.20)	1.60 (1.50-1.60)	8372
	05-06	.310 (.294-.327)	.270 (.250-.280)	.510 (.460-.560)	1.02 (.910-1.13)	1.53 (1.34-1.75)	8407
	07-08	.315 (.300-.331)	.270 (.260-.280)	.500 (.460-.560)	1.00 (.900-1.13)	1.52 (1.30-1.77)	8266
	09-10	.302 (.293-.311)	.260 (.250-.270)	.480 (.460-.510)	.960 (.880-1.01)	1.40 (1.29-1.53)	8793
Age group 1-5 years	99-00	*	< LOD	.300 (<LOD-.400)	.400 (.300-.400)	.400 (.300-.700)	723
	01-02	*	< LOD	< LOD	< LOD	.300 (.300-.300)	898
	03-04	*	< LOD	< LOD	.200 (.200-.300)	.200 (.200-.400)	910
	05-06	*	< LOD	< LOD	< LOD	.230 (.210-.250)	968
	07-08	*	< LOD	< LOD	.210 (<LOD-.230)	.240 (.220-.260)	817
	09-10	*	< LOD	< LOD	.200 (<LOD-.210)	.220 (.200-.240)	836
6-11 years	99-00	*	< LOD	.300 (<LOD-.400)	.400 (.300-.500)	.500 (.400-.500)	905
	01-02	*	< LOD	< LOD	.300 (.300-.300)	.400 (.400-.400)	1044
	03-04	*	< LOD	.200 (<LOD-.200)	.300 (.200-.300)	.300 (.300-.300)	856
	05-06	*	< LOD	< LOD	.220 (.200-.240)	.260 (.230-.280)	934
	07-08	*	< LOD	< LOD	.230 (.210-.240)	.260 (.240-.280)	1011
	09-10	*	< LOD	< LOD	.210 (.200-.240)	.240 (.220-.280)	1009
12-19 years	99-00	.333 (.304-.366)	.300 (.300-.400)	.400 (.400-.500)	.800 (.600-1.00)	1.10 (.900-1.20)	2135
	01-02	*	< LOD	.300 (.300-.400)	.500 (.400-.700)	.900 (.700-1.20)	2231
	03-04	*	.200 (<LOD-.200)	.300 (.300-.300)	.600 (.500-.700)	.900 (.800-1.10)	2081
	05-06	*	< LOD	.250 (.240-.270)	.520 (.410-.680)	.960 (.820-1.08)	1996
	07-08	*	< LOD	.260 (.240-.270)	.520 (.400-.670)	.900 (.730-1.19)	1074
	09-10	*	< LOD	.240 (.220-.260)	.340 (.310-.450)	.620 (.460-.850)	1183
20 years and older	99-00	.468 (.426-.513)	.400 (.400-.500)	.700 (.600-.800)	1.10 (1.00-1.20)	1.50 (1.40-1.60)	4207
	01-02	.425 (.400-.452)	.400 (.400-.400)	.600 (.600-.700)	1.10 (1.00-1.30)	1.60 (1.40-1.90)	4772
	03-04	.378 (.359-.398)	.400 (.300-.400)	.600 (.600-.700)	1.20 (1.20-1.30)	1.80 (1.60-1.90)	4525
	05-06	.373 (.352-.395)	.330 (.310-.350)	.610 (.570-.660)	1.17 (1.06-1.26)	1.72 (1.53-1.95)	4509
	07-08	.376 (.354-.399)	.330 (.310-.350)	.600 (.550-.670)	1.16 (1.02-1.30)	1.70 (1.50-1.96)	5364
	09-10	.358 (.347-.370)	.320 (.310-.330)	.580 (.550-.600)	1.10 (1.00-1.18)	1.55 (1.43-1.72)	5765
Gender Males	99-00	.403 (.368-.441)	.400 (.300-.400)	.600 (.500-.700)	1.00 (.900-1.10)	1.40 (1.30-1.50)	3913
	01-02	*	.300 (<LOD-.300)	.500 (.500-.600)	1.00 (.900-1.10)	1.50 (1.20-1.80)	4339
	03-04	.283 (.266-.300)	.300 (.200-.300)	.500 (.500-.500)	1.10 (1.00-1.20)	1.60 (1.50-1.60)	4131
	05-06	*	.240 (.220-.260)	.470 (.420-.530)	1.02 (.910-1.12)	1.53 (1.27-1.86)	4092
	07-08	.299 (.283-.317)	.250 (.230-.260)	.470 (.420-.540)	1.05 (.930-1.19)	1.60 (1.30-1.90)	4147
	09-10	.279 (.268-.289)	.230 (.220-.240)	.410 (.390-.460)	.920 (.830-1.00)	1.45 (1.30-1.58)	4366
Females	99-00	.421 (.386-.460)	.400 (.400-.400)	.600 (.500-.700)	1.00 (1.00-1.10)	1.30 (1.20-1.40)	4057
	01-02	.382 (.362-.403)	.400 (.300-.400)	.600 (.500-.600)	1.00 (.900-1.10)	1.40 (1.20-1.70)	4606
	03-04	.326 (.309-.344)	.300 (.300-.300)	.600 (.500-.600)	1.10 (1.00-1.20)	1.60 (1.50-1.70)	4241
	05-06	.329 (.311-.349)	.290 (.280-.310)	.530 (.480-.580)	1.02 (.870-1.18)	1.54 (1.33-1.79)	4315
	07-08	.331 (.316-.348)	.290 (.280-.310)	.530 (.480-.570)	.980 (.860-1.10)	1.43 (1.29-1.63)	4119
	09-10	.326 (.314-.339)	.290 (.280-.310)	.520 (.490-.550)	.960 (.880-1.10)	1.40 (1.20-1.53)	4427

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.14, 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Blood Cadmium (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.395 (.367-.424)	.400 (.400-.400)	.500 (.500-.600)	.800 (.700-1.00)	1.20 (.900-1.30)	2742
	01-02	*	< LOD	.400 (.400-.500)	.600 (.500-.800)	1.00 (.700-1.30)	2268
	03-04	.235 (.216-.255)	.200 (.200-.300)	.400 (.300-.400)	.600 (.500-.800)	1.00 (.800-1.50)	2085
	05-06	*	.220 (.200-.240)	.350 (.300-.400)	.580 (.510-.680)	.820 (.710-1.00)	2236
	07-08	*	.220 (.210-.230)	.350 (.320-.370)	.570 (.510-.660)	.840 (.690-1.02)	1712
	09-10	*	.220 (.200-.230)	.330 (.300-.370)	.580 (.500-.670)	.800 (.690-.960)	1966
Non-Hispanic blacks	99-00	.393 (.361-.427)	.400 (.300-.400)	.600 (.500-.600)	1.00 (.900-1.20)	1.40 (1.20-1.60)	1842
	01-02	*	.300 (<LOD-.300)	.500 (.500-.600)	1.00 (.900-1.10)	1.40 (1.20-1.70)	2219
	03-04	.304 (.275-.337)	.300 (.300-.300)	.500 (.400-.600)	1.00 (.900-1.20)	1.50 (1.30-1.70)	2292
	05-06	.307 (.290-.326)	.260 (.250-.280)	.490 (.440-.570)	1.03 (.880-1.21)	1.50 (1.23-1.79)	2193
	07-08	.333 (.316-.352)	.280 (.270-.300)	.550 (.480-.620)	1.20 (1.01-1.36)	1.81 (1.45-2.13)	1746
	09-10	.328 (.310-.347)	.280 (.260-.290)	.550 (.490-.640)	1.10 (1.00-1.20)	1.52 (1.38-1.73)	1593
Non-Hispanic whites	99-00	.420 (.376-.470)	.400 (.300-.500)	.600 (.500-.700)	1.10 (1.00-1.20)	1.40 (1.30-1.50)	2716
	01-02	*	.300 (.300-.400)	.600 (.500-.600)	1.00 (.900-1.20)	1.50 (1.30-1.80)	3806
	03-04	.313 (.296-.331)	.300 (.300-.300)	.600 (.500-.600)	1.10 (1.00-1.20)	1.60 (1.50-1.70)	3478
	05-06	.321 (.300-.343)	.270 (.250-.300)	.540 (.470-.610)	1.08 (.930-1.23)	1.64 (1.40-1.94)	3310
	07-08	.321 (.303-.341)	.270 (.260-.290)	.520 (.470-.580)	1.05 (.920-1.20)	1.55 (1.30-1.80)	3461
	09-10	.307 (.297-.318)	.270 (.260-.280)	.490 (.460-.540)	.990 (.900-1.10)	1.50 (1.36-1.60)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.14, 0.2, 0.2, and 0.2 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Blood Cadmium (2011 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.279 (.267-.292)	.250 (.230-.260)	.460 (.430-.490)	.960 (.870-1.10)	1.50 (1.30-1.70)	7920
	13-14	.235 (.224-.247)	.210 (.200-.220)	.410 (.370-.450)	.840 (.730-.940)	1.22 (1.03-1.40)	5215
	15-16	.238 (.224-.253)	.220 (.200-.230)	.400 (.370-.430)	.810 (.700-.920)	1.22 (1.07-1.37)	4988
Age group							
1-5 years	11-12	*	< LOD	< LOD	.190 (.160-.200)	.210 (.190-.240)	713
	13-14	*	< LOD	.100 (<LOD-.100)	.130 (.120-.140)	.150 (.140-.170)	818
	15-16	*	< LOD	.100 (<LOD-.120)	.140 (.130-.150)	.160 (.140-.180)	790
6-11 years	11-12	*	< LOD	.160 (<LOD-.180)	.210 (.190-.230)	.240 (.220-.280)	1048
	13-14	*	< LOD	.120 (.110-.130)	.150 (.140-.170)	.190 (.170-.200)	1075
	15-16	*	.100 (<LOD-.100)	.140 (.120-.150)	.180 (.160-.190)	.200 (.180-.230)	1023
12-19 years	11-12	*	.160 (<LOD-.170)	.230 (.210-.240)	.340 (.290-.470)	.650 (.470-.880)	1129
	13-14	.134 (.123-.146)	.120 (.110-.130)	.180 (.160-.190)	.280 (.220-.460)	.490 (.300-.960)	627
	15-16	.133 (.123-.144)	.130 (.120-.140)	.180 (.160-.210)	.260 (.230-.280)	.330 (.270-.490)	565
20 years and older	11-12	.337 (.323-.353)	.300 (.290-.320)	.550 (.520-.580)	1.14 (1.01-1.28)	1.70 (1.50-1.80)	5030
	13-14	.297 (.280-.315)	.270 (.260-.290)	.510 (.450-.570)	.940 (.830-1.08)	1.36 (1.17-1.64)	2695
	15-16	.295 (.277-.314)	.270 (.250-.290)	.480 (.440-.520)	.940 (.830-1.09)	1.35 (1.22-1.48)	2610
Gender							
Males	11-12	.255 (.238-.274)	.210 (.200-.230)	.410 (.360-.480)	.940 (.820-1.09)	1.48 (1.20-1.70)	3968
	13-14	.206 (.192-.221)	.180 (.170-.190)	.330 (.300-.370)	.750 (.610-.940)	1.18 (.940-1.42)	2587
	15-16	.215 (.201-.230)	.180 (.170-.200)	.350 (.310-.400)	.820 (.650-.940)	1.17 (.990-1.37)	2488
Females	11-12	.304 (.289-.320)	.280 (.260-.300)	.490 (.460-.510)	.980 (.850-1.16)	1.53 (1.30-1.70)	3952
	13-14	.267 (.252-.283)	.250 (.240-.280)	.480 (.440-.530)	.890 (.790-.960)	1.29 (1.09-1.53)	2628
	15-16	.263 (.244-.282)	.250 (.230-.270)	.440 (.410-.470)	.800 (.680-.940)	1.25 (1.10-1.40)	2500
Race/ethnicity							
Mexican Americans	11-12	.217 (.202-.233)	.200 (.180-.220)	.310 (.290-.340)	.550 (.510-.600)	.810 (.710-.920)	1077
	13-14	.182 (.166-.199)	.180 (.150-.200)	.280 (.250-.310)	.490 (.400-.620)	.740 (.660-.800)	969
	15-16	.194 (.180-.209)	.180 (.170-.200)	.300 (.280-.320)	.540 (.440-.660)	.870 (.570-1.27)	994
Non-Hispanic blacks	11-12	.291 (.274-.309)	.260 (.240-.270)	.470 (.430-.520)	1.07 (.950-1.20)	1.50 (1.40-1.60)	2195
	13-14	.252 (.225-.281)	.220 (.190-.260)	.480 (.390-.620)	1.03 (.930-1.17)	1.48 (1.24-1.67)	1119
	15-16	.278 (.253-.306)	.250 (.230-.280)	.490 (.440-.550)	.930 (.830-1.05)	1.38 (1.14-1.95)	1070
Non-Hispanic whites	11-12	.284 (.264-.305)	.250 (.230-.270)	.470 (.420-.520)	1.02 (.810-1.25)	1.65 (1.30-1.90)	2493
	13-14	.242 (.227-.257)	.220 (.200-.230)	.430 (.380-.480)	.860 (.700-1.02)	1.30 (1.03-1.65)	1848
	15-16	.239 (.219-.261)	.220 (.190-.240)	.410 (.370-.440)	.830 (.660-1.00)	1.25 (1.00-1.43)	1511
All Hispanics	11-12	.227 (.211-.244)	.210 (.190-.230)	.330 (.310-.380)	.600 (.540-.660)	.900 (.760-1.00)	1931
	13-14	.186 (.170-.204)	.180 (.160-.190)	.290 (.250-.330)	.560 (.450-.680)	.800 (.740-.870)	1481
	15-16	.193 (.180-.207)	.180 (.170-.200)	.300 (.280-.320)	.520 (.450-.610)	.840 (.620-1.16)	1664
Asians	11-12	.394 (.355-.437)	.390 (.340-.450)	.680 (.610-.760)	1.04 (.960-1.18)	1.40 (1.20-1.48)	1005
	13-14	.339 (.302-.380)	.330 (.300-.390)	.590 (.540-.660)	.900 (.740-1.11)	1.31 (.940-1.46)	510
	15-16	.359 (.329-.392)	.340 (.310-.410)	.570 (.510-.630)	.930 (.760-1.11)	1.33 (1.10-1.57)	479

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, and 15-16 are 0.16, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00**	.193 (.169-.220)	.232 (.214-.249)	.475 (.436-.519)	.858 (.763-.980)	1.20 (1.06-1.34)	2257
	01-02**	.210 (.189-.235)	.230 (.207-.255)	.458 (.423-.482)	.839 (.753-.919)	1.20 (1.07-1.28)	2690
	03-04	.211 (.196-.226)	.210 (.200-.230)	.450 (.400-.500)	.800 (.730-.880)	1.15 (.980-1.26)	2543
	05-06	.191 (.170-.216)	.200 (.170-.220)	.400 (.360-.460)	.780 (.700-.860)	1.05 (.960-1.17)	2576
	07-08	.185 (.172-.198)	.180 (.170-.200)	.380 (.360-.400)	.700 (.650-.770)	1.00 (.920-1.12)	2627
	09-10	.179 (.169-.190)	.180 (.170-.200)	.370 (.340-.400)	.690 (.630-.770)	1.03 (.910-1.13)	2848
Age group 6-11 years	99-00**	*	.078 (.061-.101)	.141 (.115-.173)	.219 (.178-.233)	.279 (.211-.507)	310
	01-02**	.061 (<LOD-.081)	.077 (.067-.092)	.140 (.112-.160)	.219 (.184-.262)	.282 (.260-.326)	368
	03-04	.077 (.065-.090)	.080 (.060-.090)	.120 (.100-.160)	.180 (.160-.310)	.310 (.170-.610)	287
	05-06	.066 (.056-.078)	.060 (.050-.080)	.110 (.090-.130)	.180 (.130-.240)	.240 (.160-.290)	355
	07-08	.064 (.058-.071)	.060 (.050-.070)	.110 (.090-.130)	.180 (.140-.210)	.230 (.180-.310)	394
	09-10	.057 (.053-.061)	.060 (.050-.060)	.090 (.080-.100)	.130 (.120-.160)	.170 (.140-.230)	378
12-19 years	99-00**	.092 (.067-.126)	.128 (.107-.148)	.203 (.183-.232)	.329 (.272-.372)	.426 (.366-.596)	648
	01-02**	.109 (.087-.136)	.135 (.114-.157)	.210 (.189-.247)	.327 (.289-.366)	.452 (.366-.480)	762
	03-04	.121 (.109-.134)	.130 (.110-.150)	.200 (.170-.210)	.300 (.260-.360)	.390 (.330-.490)	724
	05-06	.099 (.090-.109)	.110 (.100-.120)	.170 (.150-.190)	.240 (.210-.280)	.310 (.250-.430)	701
	07-08	.089 (.080-.100)	.080 (.070-.110)	.160 (.140-.170)	.260 (.200-.300)	.330 (.280-.410)	376
	09-10	.081 (.076-.086)	.080 (.070-.080)	.140 (.120-.150)	.220 (.180-.250)	.280 (.240-.300)	451
20 years and older	99-00**	.281 (.253-.313)	.306 (.261-.339)	.551 (.510-.623)	.980 (.836-1.13)	1.32 (1.13-1.57)	1299
	01-02**	.273 (.249-.299)	.280 (.261-.308)	.545 (.493-.607)	.972 (.855-1.06)	1.28 (1.20-1.43)	1560
	03-04	.260 (.238-.284)	.270 (.240-.300)	.530 (.470-.580)	.890 (.800-.990)	1.25 (1.09-1.46)	1532
	05-06	.241 (.213-.272)	.250 (.220-.290)	.490 (.440-.560)	.860 (.790-.930)	1.21 (1.06-1.32)	1520
	07-08	.232 (.215-.251)	.240 (.210-.260)	.450 (.410-.490)	.790 (.730-.870)	1.13 (.990-1.44)	1857
	09-10	.229 (.213-.245)	.230 (.210-.260)	.430 (.400-.470)	.790 (.700-.910)	1.13 (1.03-1.28)	2019
Gender Males	99-00**	.199 (.165-.241)	.227 (.193-.263)	.462 (.381-.539)	.892 (.748-1.15)	1.41 (.980-1.83)	1121
	01-02**	.201 (.177-.229)	.223 (.191-.257)	.445 (.393-.481)	.875 (.741-1.03)	1.22 (1.12-1.38)	1335
	03-04	.206 (.190-.222)	.210 (.190-.230)	.440 (.390-.490)	.790 (.700-.870)	1.01 (.890-1.25)	1277
	05-06	.195 (.176-.217)	.210 (.190-.230)	.400 (.360-.440)	.800 (.730-.890)	1.17 (1.01-1.30)	1271
	07-08	.179 (.162-.197)	.180 (.160-.200)	.360 (.320-.400)	.670 (.540-.780)	.950 (.800-1.16)	1327
	09-10	.170 (.157-.185)	.180 (.150-.200)	.350 (.310-.380)	.650 (.560-.700)	.950 (.770-1.14)	1398
Females	99-00**	.187 (.153-.229)	.239 (.220-.255)	.492 (.456-.540)	.818 (.705-.980)	1.10 (1.01-1.19)	1136
	01-02**	.219 (.192-.251)	.234 (.202-.265)	.466 (.433-.519)	.817 (.733-.886)	1.17 (.918-1.36)	1355
	03-04	.216 (.195-.238)	.210 (.200-.240)	.450 (.400-.530)	.820 (.700-.960)	1.20 (1.02-1.37)	1266
	05-06	.188 (.160-.221)	.190 (.160-.220)	.400 (.350-.480)	.750 (.640-.860)	.980 (.830-1.20)	1305
	07-08	.191 (.177-.207)	.190 (.170-.200)	.400 (.370-.430)	.740 (.660-.840)	1.09 (.940-1.38)	1300
	09-10	.188 (.172-.206)	.200 (.170-.210)	.400 (.360-.440)	.740 (.620-.880)	1.07 (.910-1.31)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.06, 0.06, 0.06, 0.042, 0.042, and 0.042 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**All results are corrected for molybdenum oxide interference in the ICP-MS method.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00**	.191 (.157-.233)	.202 (.167-.221)	.447 (.351-.551)	.813 (.686-.977)	1.12 (.886-1.38)	780
	01-02**	.160 (.135-.189)	.181 (.171-.198)	.322 (.285-.362)	.559 (.430-.733)	.766 (.633-1.15)	683
	03-04	.175 (.151-.203)	.170 (.150-.210)	.350 (.290-.430)	.680 (.520-.820)	1.04 (.820-1.20)	614
	05-06	.173 (.152-.196)	.180 (.160-.200)	.340 (.300-.380)	.560 (.500-.630)	.780 (.660-.900)	652
	07-08	.159 (.139-.181)	.170 (.140-.200)	.320 (.290-.370)	.570 (.510-.620)	.710 (.630-.830)	515
	09-10	.153 (.136-.173)	.150 (.130-.170)	.300 (.240-.360)	.530 (.440-.680)	.790 (.610-.840)	613
Non-Hispanic blacks	99-00**	.283 (.208-.387)	.316 (.243-.412)	.633 (.498-.806)	1.22 (.892-1.38)	1.48 (1.30-1.72)	546
	01-02**	.277 (.229-.336)	.302 (.257-.354)	.589 (.476-.713)	1.04 (.843-1.38)	1.51 (1.28-1.74)	667
	03-04	.265 (.237-.295)	.270 (.220-.320)	.550 (.440-.640)	.960 (.810-1.17)	1.52 (1.06-1.82)	717
	05-06	.236 (.218-.254)	.240 (.210-.260)	.480 (.420-.530)	.830 (.670-.930)	1.04 (.870-1.26)	692
	07-08	.246 (.218-.277)	.260 (.220-.300)	.460 (.420-.530)	.840 (.690-.980)	1.40 (.900-1.85)	589
	09-10	.234 (.211-.260)	.240 (.220-.270)	.450 (.410-.540)	.910 (.750-1.06)	1.42 (.990-1.74)	544
Non-Hispanic whites	99-00**	.175 (.148-.206)	.220 (.194-.246)	.455 (.388-.510)	.848 (.714-1.01)	1.17 (.963-1.47)	760
	01-02**	.204 (.179-.231)	.221 (.191-.255)	.445 (.394-.479)	.817 (.717-.875)	1.17 (.989-1.24)	1132
	03-04	.209 (.192-.226)	.200 (.190-.220)	.440 (.390-.500)	.790 (.700-.860)	1.13 (.940-1.26)	1070
	05-06	.185 (.159-.216)	.200 (.160-.230)	.400 (.330-.480)	.780 (.670-.920)	1.05 (.940-1.25)	1041
	07-08	.177 (.161-.195)	.170 (.150-.190)	.370 (.320-.400)	.690 (.620-.780)	1.00 (.880-1.13)	1095
	09-10	.171 (.158-.186)	.180 (.150-.200)	.350 (.320-.390)	.680 (.590-.780)	1.05 (.880-1.18)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.06, 0.06, 0.06, 0.042, 0.042, and 0.042 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result

**All results are corrected for molybdenum oxide interference in the ICP-MS method.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.155 (.143-.169)	.153 (.134-.175)	.310 (.281-.352)	.629 (.590-.670)	.874 (.806-1.08)	2504
	13-14	.124 (.116-.133)	.126 (.116-.137)	.273 (.243-.302)	.576 (.519-.621)	.842 (.767-.945)	2664
Age group							
6-11 years	11-12	*	< LOD	.070 (.056-.076)	.107 (.088-.128)	.148 (.118-.200)	399
	13-14	*	< LOD	.050 (.044-.059)	.087 (.077-.101)	.113 (.098-.140)	402
12-19 years	11-12	*	.069 (<LOD-.080)	.118 (.100-.152)	.218 (.191-.267)	.280 (.219-.339)	390
	13-14	.064 (.055-.075)	.063 (.044-.078)	.116 (.092-.146)	.206 (.146-.292)	.292 (.184-.379)	451
20 years and older	11-12	.194 (.178-.211)	.192 (.175-.217)	.375 (.336-.417)	.715 (.664-.790)	1.08 (.846-1.27)	1715
	13-14	.156 (.146-.167)	.158 (.147-.170)	.314 (.279-.359)	.654 (.603-.726)	.971 (.842-1.08)	1811
Gender							
Males	11-12	.150 (.136-.166)	.152 (.131-.170)	.292 (.262-.331)	.589 (.518-.675)	.832 (.769-.941)	1262
	13-14	.118 (.110-.126)	.123 (.107-.135)	.238 (.214-.278)	.492 (.394-.617)	.777 (.578-1.09)	1318
Females	11-12	.160 (.142-.181)	.153 (.123-.192)	.332 (.292-.375)	.669 (.607-.741)	1.07 (.798-1.31)	1242
	13-14	.131 (.118-.145)	.132 (.112-.154)	.297 (.271-.331)	.622 (.553-.719)	.896 (.773-1.05)	1346
Race/ethnicity							
Mexican Americans	11-12	.121 (.112-.132)	.115 (.094-.139)	.221 (.183-.274)	.456 (.386-.547)	.643 (.539-.705)	317
	13-14	.101 (.092-.111)	.096 (.079-.109)	.219 (.168-.264)	.424 (.331-.522)	.615 (.439-.785)	453
Non-Hispanic blacks	11-12	.193 (.172-.216)	.199 (.174-.216)	.366 (.304-.445)	.719 (.594-.831)	1.05 (.825-1.38)	669
	13-14	.179 (.146-.219)	.182 (.136-.239)	.387 (.305-.519)	.772 (.625-.947)	1.14 (.885-1.37)	581
Non-Hispanic whites	11-12	.152 (.135-.170)	.148 (.123-.183)	.303 (.269-.352)	.615 (.524-.684)	.846 (.759-1.09)	820
	13-14	.121 (.110-.134)	.124 (.106-.140)	.267 (.232-.302)	.552 (.486-.621)	.842 (.692-.987)	985
All Hispanics	11-12	.133 (.118-.150)	.127 (.105-.153)	.267 (.207-.325)	.546 (.452-.609)	.782 (.646-.976)	573
	13-14	.101 (.092-.111)	.096 (.079-.110)	.212 (.174-.259)	.424 (.340-.501)	.617 (.470-.801)	701
Asians	11-12	.218 (.190-.249)	.215 (.172-.251)	.453 (.405-.604)	.865 (.762-1.23)	1.34 (1.02-1.75)	353
	13-14	.171 (.146-.201)	.172 (.147-.206)	.417 (.304-.566)	.803 (.664-1.14)	1.19 (.817-1.27)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.056 and 0.036.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00**	.181 (.157-.209)	.219 (.199-.238)	.423 (.391-.446)	.712 (.645-.757)	.941 (.826-1.07)	2257
	01-02**	.199 (.181-.218)	.212 (.194-.232)	.404 (.377-.440)	.690 (.630-.754)	.919 (.813-.998)	2689
	03-04	.210 (.201-.219)	.208 (.189-.226)	.412 (.381-.438)	.678 (.650-.716)	.940 (.833-1.04)	2543
	05-06	.189 (.169-.210)	.180 (.160-.200)	.370 (.310-.430)	.650 (.590-.720)	.910 (.770-1.08)	2576
	07-08	.193 (.177-.210)	.190 (.180-.210)	.370 (.330-.410)	.660 (.580-.740)	.960 (.840-1.06)	2627
	09-10	.191 (.184-.199)	.180 (.170-.190)	.370 (.340-.400)	.680 (.630-.730)	.910 (.840-1.00)	2848
Age group 6-11 years	99-00**	*	.085 (.063-.107)	.148 (.123-.182)	.210 (.171-.316)	.316 (.184-.607)	310
	01-02**	.075 (<LOD-.094)	.100 (.083-.112)	.166 (.136-.192)	.233 (.206-.281)	.318 (.221-.440)	368
	03-04	.090 (.078-.104)	.091 (.075-.104)	.126 (.111-.156)	.200 (.147-.350)	.308 (.178-.415)	287
	05-06	.081 (.072-.092)	.080 (.070-.090)	.130 (.110-.140)	.170 (.150-.190)	.200 (.180-.240)	355
	07-08	.084 (.076-.092)	.080 (.080-.090)	.120 (.110-.140)	.170 (.150-.240)	.260 (.180-.430)	394
	09-10	.077 (.070-.085)	.080 (.070-.090)	.110 (.100-.130)	.160 (.130-.220)	.230 (.140-.280)	378
12-19 years	99-00**	.071 (.051-.098)	.093 (.084-.106)	.147 (.130-.163)	.215 (.204-.240)	.283 (.222-.404)	648
	01-02**	.078 (.067-.091)	.091 (.085-.101)	.137 (.123-.143)	.191 (.175-.234)	.280 (.234-.321)	762
	03-04	.086 (.077-.096)	.084 (.074-.097)	.122 (.113-.135)	.176 (.154-.198)	.234 (.187-.274)	724
	05-06	.076 (.071-.081)	.080 (.070-.090)	.120 (.110-.130)	.150 (.140-.180)	.210 (.160-.240)	701
	07-08	.070 (.062-.079)	.070 (.070-.080)	.110 (.100-.110)	.150 (.140-.160)	.180 (.160-.210)	376
	09-10	.076 (.068-.084)	.080 (.070-.090)	.120 (.100-.130)	.160 (.140-.180)	.190 (.170-.270)	451
20 years and older	99-00**	.267 (.247-.289)	.288 (.261-.304)	.484 (.433-.545)	.769 (.727-.818)	1.07 (.927-1.17)	1299
	01-02**	.261 (.236-.289)	.273 (.247-.303)	.481 (.426-.518)	.779 (.691-.850)	.979 (.874-1.12)	1559
	03-04	.268 (.255-.281)	.270 (.247-.292)	.490 (.444-.538)	.767 (.688-.830)	1.02 (.909-1.14)	1532
	05-06	.240 (.216-.267)	.230 (.200-.260)	.440 (.400-.500)	.730 (.660-.820)	1.02 (.850-1.18)	1520
	07-08	.247 (.227-.270)	.240 (.220-.270)	.430 (.390-.470)	.740 (.670-.840)	1.05 (.930-1.16)	1857
	09-10	.242 (.232-.253)	.230 (.220-.250)	.440 (.420-.460)	.760 (.700-.820)	1.01 (.910-1.14)	2019
Gender Males	99-00**	.154 (.131-.182)	.176 (.158-.191)	.329 (.293-.382)	.617 (.537-.700)	.789 (.696-.929)	1121
	01-02**	.159 (.143-.177)	.168 (.157-.182)	.335 (.304-.364)	.536 (.491-.653)	.757 (.690-.856)	1334
	03-04	.173 (.161-.187)	.162 (.143-.185)	.325 (.300-.352)	.591 (.560-.631)	.740 (.678-.795)	1277
	05-06	.160 (.145-.177)	.150 (.130-.160)	.300 (.260-.340)	.620 (.560-.670)	.820 (.710-.990)	1271
	07-08	.160 (.146-.175)	.160 (.140-.180)	.290 (.260-.330)	.520 (.440-.650)	.740 (.600-.960)	1327
	09-10	.155 (.149-.161)	.140 (.140-.160)	.280 (.250-.300)	.540 (.510-.600)	.800 (.670-.900)	1398
Females	99-00**	.211 (.170-.261)	.267 (.239-.308)	.473 (.423-.551)	.783 (.690-.917)	1.09 (.813-1.38)	1136
	01-02**	.245 (.216-.278)	.263 (.228-.297)	.479 (.414-.541)	.792 (.687-.884)	.985 (.876-1.16)	1355
	03-04	.252 (.238-.266)	.253 (.227-.288)	.487 (.438-.533)	.802 (.716-.906)	1.06 (.940-1.21)	1266
	05-06	.220 (.193-.252)	.220 (.180-.250)	.420 (.370-.470)	.690 (.590-.850)	.990 (.780-1.31)	1305
	07-08	.231 (.210-.254)	.230 (.200-.270)	.440 (.390-.480)	.770 (.700-.860)	1.08 (.970-1.16)	1300
	09-10	.233 (.218-.248)	.240 (.220-.260)	.450 (.420-.490)	.770 (.680-.860)	1.09 (.910-1.19)	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**All results are corrected for molybdenum oxide interference in the ICP-MS method.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00**	.175 (.137-.223)	.181 (.144-.225)	.331 (.266-.418)	.622 (.441-.828)	.856 (.674-1.13)	780
	01-02**	.156 (.136-.178)	.170 (.150-.184)	.282 (.263-.340)	.501 (.388-.614)	.693 (.507-.839)	682
	03-04	.163 (.147-.181)	.159 (.140-.183)	.296 (.256-.311)	.531 (.418-.667)	.718 (.562-.950)	614
	05-06	.162 (.146-.181)	.150 (.140-.170)	.280 (.220-.340)	.480 (.430-.510)	.570 (.520-.640)	652
	07-08	.159 (.141-.178)	.160 (.130-.180)	.270 (.220-.330)	.480 (.370-.620)	.720 (.520-.950)	515
	09-10	.161 (.149-.173)	.150 (.130-.170)	.280 (.240-.320)	.510 (.410-.630)	.720 (.540-.890)	613
Non-Hispanic blacks	99-00**	.183 (.140-.240)	.202 (.168-.241)	.414 (.343-.472)	.663 (.516-.827)	.873 (.722-.962)	546
	01-02**	.190 (.156-.232)	.196 (.174-.225)	.387 (.336-.449)	.686 (.559-.850)	.917 (.725-1.08)	667
	03-04	.190 (.173-.210)	.185 (.168-.207)	.338 (.288-.431)	.700 (.500-.818)	.865 (.708-1.10)	717
	05-06	.171 (.159-.183)	.160 (.140-.180)	.320 (.290-.370)	.550 (.500-.580)	.700 (.610-.730)	692
	07-08	.180 (.164-.197)	.170 (.160-.190)	.330 (.290-.390)	.600 (.470-.700)	.770 (.690-.900)	589
	09-10	.186 (.170-.203)	.180 (.160-.200)	.360 (.310-.430)	.680 (.570-.760)	.860 (.740-1.04)	544
Non-Hispanic whites	99-00**	.175 (.146-.209)	.219 (.191-.250)	.432 (.387-.470)	.729 (.666-.783)	1.00 (.826-1.16)	760
	01-02**	.205 (.184-.229)	.224 (.208-.242)	.421 (.382-.470)	.719 (.668-.784)	.931 (.806-1.05)	1132
	03-04	.220 (.207-.235)	.221 (.197-.253)	.434 (.398-.476)	.687 (.647-.767)	1.00 (.830-1.08)	1070
	05-06	.193 (.169-.221)	.180 (.160-.220)	.390 (.310-.480)	.680 (.630-.750)	.930 (.800-1.07)	1041
	07-08	.199 (.178-.222)	.200 (.180-.230)	.380 (.340-.440)	.700 (.630-.810)	1.03 (.880-1.13)	1095
	09-10	.192 (.183-.201)	.180 (.170-.200)	.390 (.340-.420)	.700 (.630-.760)	.910 (.840-1.02)	1225

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**All results are corrected for molybdenum oxide interference in the ICP-MS method.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cadmium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.176 (.165-.187)	.172 (.159-.182)	.346 (.313-.378)	.582 (.551-.639)	.907 (.772-.997)	2502
	13-14	.144 (.136-.152)	.138 (.125-.151)	.288 (.263-.311)	.563 (.487-.621)	.800 (.712-.859)	2663
Age group							
6-11 years	11-12	*	< LOD	.118 (.107-.129)	.168 (.150-.211)	.235 (.180-.300)	398
	13-14	*	< LOD	.086 (.076-.096)	.147 (.119-.167)	.175 (.140-.214)	402
12-19 years	11-12	*	.071 (<LOD-.078)	.118 (.103-.135)	.176 (.153-.204)	.250 (.176-.444)	390
	13-14	.058 (.053-.064)	.055 (.045-.068)	.092 (.080-.107)	.133 (.117-.176)	.178 (.133-.233)	451
20 years and older	11-12	.220 (.204-.237)	.213 (.198-.230)	.416 (.374-.443)	.678 (.594-.772)	.977 (.892-1.15)	1714
	13-14	.182 (.173-.191)	.181 (.163-.195)	.335 (.306-.368)	.626 (.586-.674)	.868 (.750-1.00)	1810
Gender							
Males	11-12	.140 (.127-.156)	.136 (.120-.148)	.244 (.213-.309)	.492 (.424-.554)	.713 (.583-.801)	1261
	13-14	.118 (.108-.128)	.107 (.098-.121)	.218 (.195-.253)	.402 (.349-.471)	.613 (.519-.675)	1317
Females	11-12	.218 (.202-.236)	.222 (.200-.243)	.430 (.382-.456)	.707 (.594-.868)	1.08 (.904-1.22)	1241
	13-14	.174 (.162-.186)	.173 (.151-.204)	.355 (.311-.382)	.663 (.621-.726)	.964 (.844-1.09)	1346
Race/ethnicity							
Mexican Americans	11-12	.137 (.127-.147)	.124 (.105-.144)	.244 (.196-.315)	.409 (.367-.506)	.519 (.406-1.00)	317
	13-14	.115 (.102-.129)	.114 (.096-.128)	.216 (.186-.260)	.388 (.297-.502)	.546 (.463-.729)	453
Non-Hispanic blacks	11-12	.150 (.135-.166)	.139 (.126-.164)	.286 (.259-.307)	.476 (.416-.659)	.761 (.636-.857)	669
	13-14	.136 (.114-.162)	.132 (.100-.170)	.281 (.218-.382)	.583 (.419-.663)	.691 (.616-.833)	581
Non-Hispanic whites	11-12	.183 (.167-.202)	.180 (.158-.200)	.370 (.327-.416)	.582 (.543-.677)	.932 (.725-1.15)	818
	13-14	.150 (.137-.163)	.141 (.126-.165)	.290 (.256-.322)	.571 (.453-.650)	.807 (.673-.957)	984
All Hispanics	11-12	.149 (.143-.156)	.144 (.132-.163)	.281 (.244-.320)	.471 (.400-.519)	.686 (.516-.942)	573
	13-14	.113 (.100-.127)	.112 (.091-.127)	.216 (.186-.263)	.407 (.327-.498)	.569 (.494-.683)	701
Asians	11-12	.291 (.262-.323)	.286 (.223-.342)	.610 (.532-.732)	1.03 (.913-1.12)	1.36 (1.07-1.59)	353
	13-14	.268 (.230-.313)	.264 (.219-.309)	.609 (.483-.676)	.934 (.838-1.09)	1.23 (.910-1.74)	292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cadmium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Cadmium_FactSheet.html

Urinary Cesium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	4.35 (4.00-4.74)	4.90 (4.40-5.40)	7.10 (6.60-7.70)	9.60 (8.80-10.3)	11.5 (10.2-13.0)	2464
	01-02	4.81 (4.40-5.26)	5.49 (5.12-5.90)	7.91 (7.47-8.39)	10.4 (9.56-11.4)	12.6 (11.1-13.8)	2690
	03-04	4.67 (4.39-4.97)	5.14 (4.84-5.49)	7.68 (7.20-8.21)	10.6 (9.55-11.4)	12.7 (11.5-13.9)	2558
	05-06	4.69 (4.41-4.98)	5.19 (4.91-5.43)	7.68 (7.21-8.09)	10.1 (9.65-10.9)	12.6 (12.0-13.4)	2576
	07-08	4.42 (4.25-4.60)	4.90 (4.64-5.12)	7.02 (6.79-7.38)	9.46 (9.04-9.86)	11.3 (10.5-11.8)	2627
	09-10	4.06 (3.87-4.26)	4.47 (4.22-4.66)	6.54 (6.35-6.75)	8.98 (8.25-9.68)	11.0 (10.1-11.6)	2848
Age group 6-11 years	99-00	4.87 (4.08-5.81)	5.70 (4.60-6.70)	7.30 (6.70-8.00)	9.00 (7.90-10.1)	9.70 (9.00-10.8)	340
	01-02	4.87 (4.08-5.82)	5.64 (4.69-6.56)	7.96 (6.77-8.84)	9.88 (8.64-10.6)	11.1 (10.2-12.4)	368
	03-04	5.21 (4.74-5.71)	5.50 (4.76-6.37)	8.08 (7.10-8.83)	11.5 (8.86-12.9)	12.9 (10.8-13.6)	290
	05-06	4.74 (4.31-5.21)	5.38 (4.67-5.60)	7.00 (6.38-7.50)	9.30 (8.60-9.95)	11.2 (9.62-12.9)	355
	07-08	4.58 (4.22-4.96)	5.10 (4.50-5.44)	6.91 (6.45-7.47)	8.25 (7.77-8.93)	9.88 (8.47-10.9)	394
	09-10	4.21 (3.84-4.62)	4.58 (4.01-5.12)	6.68 (6.25-6.98)	8.28 (7.47-9.11)	9.56 (8.68-11.9)	378
12-19 years	99-00	4.55 (4.09-5.05)	5.20 (4.40-5.60)	6.90 (6.10-7.80)	8.80 (8.10-9.50)	10.7 (8.90-12.5)	718
	01-02	5.22 (4.57-5.95)	5.62 (5.16-6.12)	7.55 (7.13-8.04)	9.77 (9.12-11.1)	12.0 (10.0-15.0)	762
	03-04	5.04 (4.59-5.54)	5.70 (5.16-6.07)	7.53 (6.91-8.37)	9.71 (8.80-10.4)	11.6 (9.92-13.2)	725
	05-06	4.76 (4.24-5.34)	5.27 (4.80-5.74)	7.50 (6.71-8.04)	9.60 (8.52-10.5)	10.6 (9.68-11.8)	701
	07-08	4.58 (4.10-5.13)	5.14 (4.30-5.76)	6.93 (6.33-7.37)	9.20 (7.67-9.91)	10.6 (8.91-15.1)	376
	09-10	3.70 (3.39-4.02)	4.11 (3.54-4.70)	6.17 (5.72-6.47)	8.20 (7.16-8.79)	9.52 (8.66-10.6)	451
20 years and older	99-00	4.26 (3.94-4.62)	4.80 (4.40-5.30)	7.10 (6.50-7.60)	9.80 (8.90-10.7)	11.7 (10.2-13.4)	1406
	01-02	4.74 (4.32-5.20)	5.43 (5.05-5.87)	7.97 (7.43-8.52)	10.6 (9.73-11.5)	12.9 (11.2-14.2)	1560
	03-04	4.56 (4.23-4.90)	5.03 (4.60-5.42)	7.66 (7.01-8.34)	10.7 (9.40-11.5)	12.9 (11.5-14.9)	1543
	05-06	4.67 (4.38-4.99)	5.14 (4.84-5.44)	7.77 (7.32-8.30)	10.4 (9.72-11.5)	13.2 (12.4-13.9)	1520
	07-08	4.38 (4.20-4.58)	4.79 (4.59-4.99)	7.12 (6.81-7.52)	9.69 (9.23-10.2)	11.4 (10.6-12.0)	1857
	09-10	4.10 (3.88-4.34)	4.49 (4.21-4.71)	6.57 (6.33-6.84)	9.26 (8.37-10.1)	11.1 (10.3-11.9)	2019
Gender Males	99-00	4.84 (4.35-5.38)	5.50 (4.60-6.00)	7.50 (7.00-8.20)	9.70 (8.80-11.3)	11.7 (10.3-13.0)	1226
	01-02	5.34 (4.89-5.84)	6.13 (5.61-6.64)	8.27 (7.84-9.08)	10.8 (10.1-12.1)	12.8 (11.3-15.0)	1335
	03-04	5.03 (4.73-5.36)	5.59 (5.17-6.00)	7.98 (7.31-8.63)	11.0 (9.53-11.8)	12.9 (11.5-16.1)	1281
	05-06	5.13 (4.78-5.51)	5.37 (5.03-5.71)	7.92 (7.61-8.41)	10.9 (9.96-11.6)	13.2 (12.4-13.9)	1271
	07-08	4.77 (4.59-4.96)	5.26 (4.98-5.43)	7.18 (6.93-7.54)	9.68 (8.93-10.6)	11.6 (10.6-12.6)	1327
	09-10	4.27 (4.00-4.55)	4.70 (4.46-5.00)	6.57 (6.39-6.81)	8.67 (7.91-9.57)	10.7 (9.66-11.3)	1398
Females	99-00	3.95 (3.63-4.29)	4.50 (4.20-4.90)	6.70 (6.20-7.30)	9.10 (8.30-10.0)	11.2 (9.90-12.9)	1238
	01-02	4.36 (3.95-4.81)	4.87 (4.45-5.25)	7.33 (6.71-8.01)	9.77 (9.07-11.0)	12.4 (10.4-13.8)	1355
	03-04	4.35 (4.03-4.70)	4.79 (4.25-5.26)	7.30 (6.87-7.81)	10.2 (9.40-11.0)	12.1 (11.2-13.6)	1277
	05-06	4.30 (3.98-4.65)	4.89 (4.58-5.25)	7.43 (6.99-7.83)	9.79 (9.30-10.5)	12.1 (10.6-13.1)	1305
	07-08	4.12 (3.88-4.37)	4.40 (4.17-4.74)	6.84 (6.32-7.36)	9.31 (8.69-9.76)	10.5 (9.93-11.7)	1300
	09-10	3.88 (3.63-4.14)	4.13 (3.83-4.55)	6.46 (5.95-6.90)	9.29 (8.62-10.0)	11.2 (10.3-12.1)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.14, 0.14, 0.2, 0.066, 0.066, and 0.066 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Urinary Cesium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	4.32 (3.82-4.89)	4.80 (4.30-5.20)	6.70 (6.40-7.20)	9.10 (8.00-9.90)	11.1 (9.60-12.7)	884
	01-02	4.63 (4.10-5.24)	5.29 (4.59-5.89)	7.08 (6.42-7.99)	9.13 (7.86-11.3)	11.3 (8.81-14.9)	683
	03-04	4.94 (4.64-5.27)	5.62 (5.01-6.09)	7.86 (7.15-8.46)	10.3 (8.99-11.3)	11.9 (10.7-14.7)	618
	05-06	4.64 (4.41-4.88)	5.18 (4.91-5.55)	7.29 (6.74-7.73)	9.52 (8.76-9.98)	11.5 (9.88-11.9)	652
	07-08	4.50 (4.06-4.99)	4.93 (4.40-5.56)	6.98 (6.38-7.49)	9.12 (8.25-9.82)	10.8 (9.45-12.1)	515
	09-10	4.20 (3.95-4.48)	4.47 (4.16-4.87)	6.49 (6.00-7.01)	8.64 (7.81-9.40)	10.2 (9.15-11.4)	613
Non-Hispanic blacks	99-00	4.94 (4.33-5.64)	5.40 (4.80-6.40)	7.50 (6.90-8.40)	9.80 (8.80-10.8)	11.6 (9.80-13.1)	568
	01-02	4.93 (4.70-5.17)	5.33 (5.05-5.64)	7.36 (6.97-7.59)	9.44 (8.71-9.68)	10.7 (10.1-12.3)	667
	03-04	4.71 (4.47-4.97)	5.12 (4.71-5.49)	7.17 (6.72-7.60)	9.13 (8.52-9.99)	10.7 (9.99-11.4)	723
	05-06	4.78 (4.42-5.18)	5.26 (5.03-5.44)	7.20 (6.63-7.66)	9.14 (8.26-10.6)	11.0 (9.63-13.7)	692
	07-08	4.64 (4.29-5.01)	4.90 (4.48-5.31)	6.90 (6.35-7.42)	9.39 (8.29-10.3)	11.3 (9.59-12.6)	589
	09-10	4.07 (3.82-4.35)	4.68 (4.29-4.84)	6.56 (6.19-7.01)	8.98 (8.12-9.31)	9.97 (9.27-11.3)	544
Non-Hispanic whites	99-00	4.25 (3.83-4.72)	4.80 (4.20-5.50)	7.20 (6.60-7.90)	9.70 (8.90-10.7)	11.8 (10.3-13.3)	821
	01-02	4.77 (4.27-5.32)	5.49 (4.99-6.05)	7.98 (7.45-8.61)	10.4 (9.54-11.4)	12.6 (11.0-13.8)	1132
	03-04	4.56 (4.22-4.94)	5.02 (4.59-5.42)	7.60 (7.00-8.23)	10.7 (9.26-11.8)	12.9 (11.5-14.7)	1074
	05-06	4.64 (4.25-5.05)	5.19 (4.76-5.49)	7.77 (7.18-8.46)	10.3 (9.62-11.5)	13.1 (12.1-13.9)	1041
	07-08	4.29 (4.07-4.53)	4.76 (4.48-5.08)	7.02 (6.67-7.49)	9.50 (8.91-9.93)	11.3 (10.3-12.2)	1095
	09-10	3.96 (3.73-4.20)	4.38 (4.10-4.64)	6.43 (6.15-6.63)	8.62 (7.86-9.29)	10.5 (9.35-11.5)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.14, 0.14, 0.2, 0.066, 0.066, and 0.066 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Urinary Cesium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.82 (3.58-4.08)	4.11 (3.90-4.42)	6.31 (5.96-6.63)	8.81 (8.39-9.21)	10.5 (9.76-11.1)	2503
	13-14	3.94 (3.76-4.12)	4.21 (3.96-4.47)	6.63 (6.36-6.85)	9.31 (8.87-9.80)	11.3 (10.4-11.8)	2664
Age group							
6-11 years	11-12	3.91 (3.50-4.36)	4.52 (3.75-4.96)	6.71 (6.18-7.16)	8.61 (7.39-9.28)	10.2 (9.02-10.6)	399
	13-14	4.15 (3.80-4.52)	4.63 (4.05-5.12)	7.11 (6.58-7.54)	9.58 (8.49-10.0)	10.4 (9.92-11.1)	402
12-19 years	11-12	3.56 (3.08-4.13)	3.96 (3.45-4.56)	5.96 (5.19-6.73)	7.74 (7.17-8.99)	9.55 (7.81-10.6)	390
	13-14	4.14 (3.72-4.61)	4.55 (4.12-5.08)	6.62 (6.09-7.29)	8.93 (8.19-9.86)	10.9 (9.40-11.8)	451
20 years and older	11-12	3.85 (3.61-4.10)	4.11 (3.85-4.43)	6.31 (5.94-6.67)	9.08 (8.51-9.44)	10.7 (9.81-11.2)	1714
	13-14	3.89 (3.70-4.09)	4.09 (3.85-4.36)	6.57 (6.32-6.82)	9.30 (8.67-9.90)	11.3 (10.4-12.2)	1811
Gender							
Males	11-12	4.20 (3.94-4.47)	4.49 (4.21-4.98)	6.53 (6.15-6.95)	9.08 (8.43-9.55)	10.6 (9.80-11.1)	1261
	13-14	4.10 (3.84-4.38)	4.47 (4.10-4.88)	6.79 (6.42-7.22)	9.30 (8.56-10.1)	11.1 (9.81-13.1)	1318
Females	11-12	3.49 (3.16-3.85)	3.75 (3.48-3.99)	5.94 (5.38-6.55)	8.58 (7.58-9.33)	10.3 (9.44-11.2)	1242
	13-14	3.78 (3.57-4.02)	3.98 (3.60-4.28)	6.35 (5.98-6.75)	9.31 (8.50-9.88)	11.5 (10.1-12.4)	1346
Race/ethnicity							
Mexican Americans	11-12	3.76 (3.43-4.12)	4.12 (3.61-4.54)	5.50 (5.21-6.21)	7.77 (7.32-8.75)	9.68 (8.07-10.4)	317
	13-14	3.99 (3.76-4.24)	4.25 (3.65-5.09)	6.53 (6.13-7.18)	9.01 (8.28-9.61)	10.2 (9.01-11.2)	453
Non-Hispanic blacks	11-12	3.97 (3.68-4.29)	4.49 (4.10-4.88)	6.49 (5.98-6.88)	8.12 (7.56-9.21)	9.59 (8.61-11.0)	669
	13-14	4.41 (3.97-4.89)	4.83 (4.20-5.38)	6.82 (6.20-7.30)	8.93 (8.01-9.81)	10.7 (9.34-12.2)	581
Non-Hispanic whites	11-12	3.78 (3.50-4.07)	4.01 (3.75-4.30)	6.30 (5.85-6.85)	9.08 (8.53-9.48)	10.6 (9.88-11.1)	820
	13-14	3.81 (3.54-4.10)	4.09 (3.70-4.47)	6.62 (6.19-7.06)	9.38 (8.56-10.2)	11.5 (10.1-13.1)	985
All Hispanics	11-12	3.80 (3.44-4.20)	4.13 (3.65-4.62)	5.87 (5.40-6.34)	7.77 (7.16-8.73)	9.52 (8.08-10.3)	573
	13-14	4.04 (3.79-4.30)	4.21 (3.70-4.77)	6.65 (6.29-7.17)	9.01 (8.43-9.61)	10.4 (9.30-11.6)	701
Asians	11-12	4.22 (3.88-4.60)	4.43 (4.00-5.02)	7.42 (6.58-7.92)	10.7 (9.27-11.4)	12.4 (11.1-15.6)	352
	13-14	3.92 (3.61-4.24)	4.10 (3.43-4.52)	6.41 (5.87-7.48)	9.81 (7.91-11.4)	11.4 (9.11-14.3)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.12 and 0.086.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Urinary Cesium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	4.10 (3.96-4.25)	4.13 (3.97-4.27)	5.41 (5.21-5.70)	7.14 (6.83-7.50)	8.64 (8.00-9.30)	2464
	01-02	4.54 (4.30-4.79)	4.44 (4.20-4.64)	6.06 (5.66-6.47)	8.18 (7.62-8.95)	10.2 (8.84-11.7)	2689
	03-04	4.64 (4.42-4.87)	4.42 (4.21-4.74)	6.11 (5.76-6.48)	8.51 (7.99-9.15)	10.6 (9.75-11.0)	2558
	05-06	4.62 (4.37-4.88)	4.51 (4.20-4.76)	6.19 (5.90-6.55)	8.84 (8.14-9.24)	10.8 (9.71-12.1)	2576
	07-08	4.62 (4.42-4.82)	4.58 (4.36-4.79)	6.23 (5.96-6.61)	8.67 (7.79-9.52)	10.6 (9.78-11.2)	2627
	09-10	4.33 (4.17-4.49)	4.28 (4.12-4.45)	6.00 (5.70-6.23)	8.06 (7.76-8.36)	9.75 (9.05-10.4)	2848
Age group 6-11 years	99-00	5.34 (5.03-5.67)	5.42 (5.03-6.04)	6.63 (6.18-7.13)	8.23 (7.13-9.41)	9.90 (7.88-10.1)	340
	01-02	5.95 (5.48-6.46)	5.91 (5.43-6.53)	7.77 (7.00-8.28)	9.27 (8.35-11.9)	11.9 (9.38-12.3)	368
	03-04	6.07 (5.63-6.53)	6.02 (5.45-6.49)	8.30 (7.16-8.99)	10.8 (9.15-11.8)	11.9 (10.3-15.8)	290
	05-06	5.85 (5.41-6.34)	5.74 (5.21-6.41)	7.65 (6.67-9.11)	10.1 (9.38-10.8)	11.6 (10.1-14.9)	355
	07-08	5.96 (5.53-6.43)	6.12 (5.79-6.55)	7.88 (7.33-8.53)	10.7 (8.91-12.1)	12.5 (10.9-14.1)	394
	09-10	5.74 (5.30-6.22)	5.58 (5.15-6.12)	7.16 (6.71-7.87)	9.19 (8.13-10.4)	12.2 (8.69-14.8)	378
12-19 years	99-00	3.43 (3.29-3.58)	3.54 (3.29-3.68)	4.35 (4.17-4.56)	5.31 (4.97-5.79)	6.67 (5.33-8.09)	718
	01-02	3.73 (3.41-4.08)	3.55 (3.36-3.74)	4.74 (4.40-5.14)	6.10 (5.35-7.63)	8.08 (6.44-9.82)	762
	03-04	3.60 (3.37-3.85)	3.51 (3.33-3.72)	4.53 (4.24-4.87)	6.08 (5.14-6.94)	7.27 (6.13-9.07)	725
	05-06	3.66 (3.40-3.93)	3.59 (3.40-3.83)	4.76 (4.30-5.20)	5.93 (5.62-6.62)	7.62 (6.03-8.07)	701
	07-08	3.58 (3.31-3.88)	3.70 (3.22-3.96)	4.98 (4.60-5.17)	6.36 (5.38-7.28)	7.93 (6.06-9.76)	376
	09-10	3.46 (3.27-3.65)	3.48 (3.23-3.74)	4.39 (4.16-4.70)	5.54 (5.01-6.32)	6.56 (5.95-7.35)	451
20 years and older	99-00	4.08 (3.88-4.29)	4.06 (3.85-4.29)	5.39 (5.04-5.85)	7.17 (6.84-7.58)	8.61 (7.91-9.30)	1406
	01-02	4.54 (4.30-4.78)	4.43 (4.20-4.59)	5.94 (5.64-6.40)	8.15 (7.46-8.97)	10.2 (8.74-11.7)	1559
	03-04	4.68 (4.46-4.91)	4.47 (4.27-4.80)	6.11 (5.83-6.43)	8.47 (7.76-9.17)	10.5 (9.68-11.2)	1543
	05-06	4.67 (4.42-4.93)	4.54 (4.25-4.78)	6.24 (5.93-6.66)	8.92 (8.29-9.31)	11.2 (9.71-12.7)	1520
	07-08	4.67 (4.46-4.88)	4.58 (4.34-4.82)	6.19 (5.93-6.61)	8.65 (7.79-9.52)	10.6 (9.68-11.3)	1857
	09-10	4.34 (4.17-4.53)	4.28 (4.10-4.49)	6.07 (5.70-6.33)	8.20 (7.81-8.65)	9.80 (9.05-11.1)	2019
Gender Males	99-00	3.78 (3.65-3.91)	3.78 (3.61-3.96)	4.96 (4.72-5.20)	6.50 (6.18-6.70)	7.71 (7.01-8.64)	1226
	01-02	4.22 (3.96-4.51)	4.10 (3.87-4.41)	5.60 (5.27-6.03)	7.67 (6.90-8.48)	9.46 (8.22-11.5)	1334
	03-04	4.24 (3.99-4.50)	4.12 (3.89-4.37)	5.66 (5.19-6.06)	7.66 (6.90-8.40)	9.00 (8.36-10.3)	1281
	05-06	4.21 (3.94-4.50)	4.11 (3.72-4.46)	5.75 (5.14-6.11)	7.68 (6.91-8.78)	9.33 (8.84-9.84)	1271
	07-08	4.27 (4.04-4.51)	4.19 (4.02-4.42)	5.81 (5.46-6.29)	7.84 (7.20-8.65)	9.61 (8.65-10.2)	1327
	09-10	3.89 (3.70-4.09)	3.85 (3.60-4.06)	5.29 (4.89-5.69)	7.02 (6.76-7.42)	8.38 (7.87-9.18)	1398
Females	99-00	4.43 (4.20-4.68)	4.45 (4.14-4.77)	5.92 (5.36-6.47)	7.70 (7.16-8.07)	9.41 (8.00-10.4)	1238
	01-02	4.86 (4.58-5.16)	4.72 (4.50-5.06)	6.54 (5.93-7.00)	8.50 (7.84-9.79)	10.3 (8.95-12.2)	1355
	03-04	5.05 (4.77-5.35)	4.77 (4.44-5.14)	6.58 (6.14-7.22)	9.43 (8.56-10.5)	11.3 (10.7-12.3)	1277
	05-06	5.05 (4.78-5.33)	4.86 (4.57-5.17)	6.72 (6.31-7.23)	9.65 (9.23-10.3)	12.6 (11.0-13.3)	1305
	07-08	4.98 (4.76-5.20)	4.90 (4.69-5.20)	6.72 (6.20-7.06)	9.50 (8.37-10.5)	11.3 (10.7-12.1)	1300
	09-10	4.79 (4.63-4.97)	4.69 (4.50-4.93)	6.57 (6.34-6.85)	8.88 (8.36-9.33)	10.5 (9.56-12.0)	1450

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Urinary Cesium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	3.99 (3.73-4.25)	3.95 (3.65-4.17)	5.09 (4.79-5.39)	6.65 (6.08-7.10)	7.98 (7.20-8.95)	884
	01-02	4.51 (4.00-5.08)	4.51 (3.82-4.95)	5.91 (5.31-6.64)	7.77 (6.60-10.0)	10.0 (7.60-20.5)	682
	03-04	4.58 (4.16-5.05)	4.51 (4.10-4.92)	5.74 (5.42-6.09)	7.53 (6.59-8.91)	9.44 (8.24-10.6)	618
	05-06	4.36 (4.10-4.64)	4.40 (3.97-4.73)	5.69 (5.24-6.22)	7.23 (6.69-7.80)	8.14 (7.65-9.33)	652
	07-08	4.50 (4.22-4.79)	4.39 (3.96-4.86)	6.07 (5.57-6.59)	7.63 (7.30-7.89)	9.06 (7.89-10.5)	515
	09-10	4.41 (4.17-4.65)	4.38 (4.04-4.59)	5.70 (5.34-6.07)	7.68 (7.17-8.24)	8.89 (8.50-9.52)	613
Non-Hispanic blacks	99-00	3.21 (2.90-3.56)	3.26 (3.05-3.44)	4.30 (4.00-4.55)	5.50 (5.00-5.98)	6.33 (5.91-7.04)	568
	01-02	3.38 (3.19-3.57)	3.35 (3.05-3.60)	4.41 (4.15-4.78)	5.87 (5.63-6.29)	6.75 (6.41-7.03)	667
	03-04	3.38 (3.21-3.56)	3.30 (3.08-3.50)	4.31 (4.02-4.62)	5.79 (5.12-6.47)	6.98 (6.38-7.18)	723
	05-06	3.47 (3.34-3.60)	3.40 (3.21-3.60)	4.47 (4.25-4.68)	5.94 (5.52-6.31)	6.95 (6.20-7.51)	692
	07-08	3.39 (3.21-3.58)	3.33 (3.18-3.54)	4.50 (4.21-4.78)	5.84 (5.41-6.18)	6.87 (5.94-7.58)	589
	09-10	3.23 (3.05-3.42)	3.20 (2.99-3.46)	4.31 (4.12-4.59)	5.88 (5.30-6.28)	6.69 (6.32-7.89)	544
Non-Hispanic whites	99-00	4.26 (4.07-4.47)	4.28 (4.05-4.50)	5.66 (5.26-6.05)	7.27 (6.84-7.83)	8.75 (7.93-9.38)	821
	01-02	4.81 (4.55-5.08)	4.63 (4.42-4.96)	6.33 (5.91-6.68)	8.46 (7.84-9.39)	10.3 (9.04-11.8)	1132
	03-04	4.81 (4.52-5.12)	4.56 (4.31-4.98)	6.28 (5.95-6.71)	8.63 (7.99-9.28)	10.6 (9.43-11.0)	1074
	05-06	4.82 (4.50-5.17)	4.68 (4.32-5.04)	6.41 (6.00-6.81)	9.18 (8.67-9.53)	11.0 (9.71-12.7)	1041
	07-08	4.81 (4.54-5.09)	4.73 (4.42-5.12)	6.43 (6.01-6.80)	9.24 (8.20-9.82)	11.0 (10.2-11.7)	1095
	09-10	4.42 (4.23-4.63)	4.36 (4.15-4.54)	6.16 (5.82-6.51)	8.13 (7.68-8.65)	9.83 (8.79-11.4)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Urinary Cesium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.33 (4.13-4.53)	4.27 (4.08-4.50)	5.91 (5.63-6.33)	8.12 (7.43-8.63)	10.2 (8.93-10.7)	2501
	13-14	4.55 (4.40-4.70)	4.42 (4.24-4.64)	6.37 (6.16-6.58)	8.61 (8.32-8.86)	10.3 (9.67-10.9)	2663
Age group							
6-11 years	11-12	5.56 (5.16-5.99)	5.47 (5.06-5.98)	7.15 (6.68-7.43)	9.42 (7.88-10.7)	10.7 (9.45-13.0)	398
	13-14	6.18 (5.90-6.48)	6.25 (5.82-6.83)	8.07 (7.58-8.75)	9.96 (9.24-11.1)	11.6 (9.88-13.4)	402
12-19 years	11-12	3.41 (3.16-3.67)	3.35 (3.05-3.82)	4.34 (3.95-4.93)	5.30 (5.07-6.17)	6.34 (5.66-6.64)	390
	13-14	3.75 (3.49-4.03)	3.69 (3.45-3.95)	4.79 (4.36-5.37)	6.79 (5.47-7.52)	7.52 (6.17-9.30)	451
20 years and older	11-12	4.36 (4.15-4.59)	4.29 (4.10-4.54)	6.00 (5.65-6.45)	8.22 (7.64-8.78)	10.2 (9.47-11.2)	1713
	13-14	4.53 (4.38-4.69)	4.40 (4.18-4.67)	6.29 (6.15-6.50)	8.61 (8.30-8.86)	10.3 (9.81-10.8)	1810
Gender							
Males	11-12	3.93 (3.73-4.14)	3.80 (3.63-4.10)	5.31 (4.87-5.91)	7.58 (6.78-8.26)	8.80 (8.28-10.2)	1260
	13-14	4.10 (3.92-4.29)	4.04 (3.79-4.29)	5.39 (5.10-5.77)	7.55 (6.83-8.11)	8.92 (8.18-10.1)	1317
Females	11-12	4.74 (4.52-4.97)	4.73 (4.55-4.93)	6.43 (5.91-6.82)	8.55 (8.05-9.48)	11.2 (9.48-12.5)	1241
	13-14	5.02 (4.86-5.19)	5.00 (4.71-5.23)	7.08 (6.80-7.39)	9.51 (8.67-10.1)	11.3 (10.5-12.3)	1346
Race/ethnicity							
Mexican Americans	11-12	4.23 (3.96-4.51)	4.14 (3.72-4.53)	5.63 (5.11-5.91)	7.06 (6.41-8.03)	8.78 (7.48-10.3)	317
	13-14	4.56 (4.37-4.74)	4.40 (4.16-4.78)	6.02 (5.61-6.35)	7.58 (6.91-7.94)	8.92 (7.94-10.0)	453
Non-Hispanic blacks	11-12	3.09 (2.92-3.27)	3.12 (2.89-3.32)	4.13 (3.90-4.40)	5.31 (4.98-5.63)	6.29 (5.67-6.84)	669
	13-14	3.35 (3.20-3.52)	3.34 (3.14-3.54)	4.37 (4.14-4.63)	5.82 (5.37-6.27)	7.18 (6.25-7.86)	581
Non-Hispanic whites	11-12	4.56 (4.29-4.85)	4.50 (4.19-4.80)	6.34 (5.74-6.88)	8.26 (7.86-9.36)	10.3 (9.27-11.5)	818
	13-14	4.70 (4.56-4.85)	4.56 (4.30-4.84)	6.63 (6.40-6.95)	8.91 (8.37-9.67)	10.5 (9.98-11.3)	984
All Hispanics	11-12	4.25 (4.00-4.52)	4.25 (3.88-4.49)	5.69 (5.35-5.91)	7.43 (6.61-8.23)	8.67 (8.12-9.70)	573
	13-14	4.51 (4.34-4.69)	4.43 (4.25-4.64)	5.89 (5.61-6.21)	7.71 (7.12-8.15)	8.93 (8.29-9.52)	701
Asians	11-12	5.65 (5.13-6.22)	5.40 (5.12-5.95)	7.88 (6.84-9.33)	12.0 (10.1-13.7)	14.7 (12.2-19.4)	352
	13-14	6.14 (5.49-6.86)	6.12 (5.47-6.70)	8.31 (7.23-9.63)	11.5 (9.32-16.0)	16.0 (10.8-18.2)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cesium_BiomonitoringSummary.html

Blood Chromium (2015 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	15-16	*	< LOD	< LOD	.700 (.540-.900)	1.08 (.750-1.49)	3442
Age group							
40-59 years	15-16	*	< LOD	< LOD	.650 (.470-.970)	1.07 (.710-1.57)	1719
60 years and older	15-16	*	< LOD	< LOD	.750 (.550-.940)	1.13 (.790-1.49)	1723
Gender							
Males	15-16	*	< LOD	< LOD	.620 (.460-.880)	1.07 (.680-1.58)	1656
Females	15-16	*	< LOD	< LOD	.740 (.580-.940)	1.08 (.800-1.43)	1786
Race/ethnicity							
Mexican Americans	15-16	*	< LOD	< LOD	.570 (.460-.700)	.750 (.550-1.34)	589
Non-Hispanic blacks	15-16	*	< LOD	< LOD	.490 (<LOD-.740)	.870 (.690-1.10)	714
Non-Hispanic whites	15-16	*	< LOD	< LOD	.750 (.550-1.07)	1.20 (.790-1.57)	1195
All Hispanics	15-16	*	< LOD	< LOD	.550 (.430-.690)	.760 (.630-1.06)	1062
Asians	15-16	*	< LOD	< LOD	.800 (.600-.980)	1.03 (.820-1.44)	368

Limit of detection (LOD, see Data Analysis section) for Survey year 15-16 is 0.41.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Cobalt (2015 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	15-16	.151 (.146-.156)	.130 (.130-.140)	.170 (.170-.180)	.280 (.250-.300)	.400 (.370-.450)	3454
Age group							
40-59 years	15-16	.144 (.138-.150)	.130 (.120-.130)	.160 (.150-.170)	.260 (.220-.290)	.360 (.300-.440)	1726
60 years and older	15-16	.162 (.155-.168)	.140 (.140-.150)	.190 (.180-.200)	.300 (.270-.370)	.450 (.390-.520)	1728
Gender							
Males	15-16	.135 (.129-.142)	.120 (.120-.130)	.150 (.140-.160)	.210 (.190-.240)	.360 (.250-.400)	1661
Females	15-16	.167 (.161-.173)	.150 (.140-.150)	.200 (.190-.210)	.320 (.280-.360)	.460 (.410-.550)	1793
Race/ethnicity							
Mexican Americans	15-16	.151 (.146-.157)	.130 (.120-.140)	.170 (.160-.190)	.300 (.240-.360)	.440 (.350-.610)	592
Non-Hispanic blacks	15-16	.148 (.138-.159)	.130 (.120-.140)	.180 (.160-.190)	.280 (.250-.340)	.440 (.390-.500)	718
Non-Hispanic whites	15-16	.151 (.145-.157)	.130 (.130-.140)	.170 (.160-.190)	.270 (.240-.290)	.390 (.330-.450)	1198
All Hispanics	15-16	.150 (.145-.154)	.130 (.120-.140)	.170 (.160-.180)	.300 (.240-.360)	.440 (.350-.560)	1067
Asians	15-16	.152 (.145-.160)	.140 (.130-.150)	.170 (.160-.180)	.290 (.210-.370)	.380 (.290-.620)	368

Limit of detection (LOD, see Data Analysis section) for Survey year 15-16 is 0.06.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Urinary Cobalt (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.375 (.336-.419)	.410 (.370-.450)	.630 (.570-.680)	.950 (.890-1.03)	1.32 (1.16-1.48)	2465
	01-02	.379 (.355-.404)	.410 (.380-.430)	.610 (.570-.660)	.940 (.870-1.00)	1.28 (1.15-1.44)	2690
	03-04	.316 (.291-.343)	.330 (.300-.350)	.520 (.490-.550)	.820 (.750-.890)	1.16 (1.08-1.26)	2558
	05-06	.374 (.357-.392)	.390 (.370-.410)	.600 (.560-.630)	.880 (.840-.950)	1.33 (1.17-1.47)	2576
	07-08	.369 (.351-.389)	.380 (.360-.390)	.580 (.550-.600)	.920 (.840-1.01)	1.32 (1.10-1.43)	2627
	09-10	.369 (.341-.398)	.380 (.350-.400)	.600 (.560-.650)	.960 (.870-1.06)	1.40 (1.20-1.58)	2848
Age group 6-11 years	99-00	.499 (.427-.583)	.530 (.450-.640)	.750 (.610-.900)	1.03 (.880-1.12)	1.22 (1.03-1.50)	340
	01-02	.452 (.377-.543)	.520 (.430-.610)	.710 (.670-.810)	1.07 (.940-1.21)	1.32 (1.17-1.53)	368
	03-04	.454 (.393-.523)	.460 (.410-.520)	.750 (.590-.900)	1.24 (.910-1.47)	1.68 (1.26-1.81)	290
	05-06	.424 (.383-.468)	.450 (.410-.490)	.660 (.580-.710)	.870 (.830-1.04)	1.16 (.910-1.39)	355
	07-08	.433 (.367-.509)	.450 (.360-.550)	.700 (.560-.810)	.960 (.790-1.28)	1.40 (.880-1.82)	394
	09-10	.424 (.379-.474)	.440 (.400-.490)	.670 (.610-.740)	.960 (.850-1.10)	1.14 (1.01-1.69)	378
12-19 years	99-00	.519 (.463-.581)	.520 (.490-.570)	.820 (.670-.890)	1.17 (1.01-1.47)	1.52 (1.26-2.56)	719
	01-02	.515 (.469-.564)	.520 (.480-.570)	.750 (.690-.840)	1.24 (1.07-1.32)	1.59 (1.37-1.99)	762
	03-04	.461 (.428-.496)	.480 (.450-.520)	.740 (.650-.800)	1.03 (.940-1.23)	1.60 (1.14-1.92)	725
	05-06	.510 (.451-.577)	.500 (.460-.570)	.820 (.690-.980)	1.30 (1.08-1.40)	1.74 (1.39-2.08)	701
	07-08	.529 (.478-.585)	.510 (.450-.570)	.820 (.690-.960)	1.36 (1.09-1.53)	1.70 (1.40-1.78)	376
	09-10	.465 (.406-.533)	.460 (.430-.530)	.830 (.710-.920)	1.21 (1.05-1.51)	1.56 (1.19-2.11)	451
20 years and older	99-00	.343 (.305-.386)	.370 (.330-.420)	.570 (.520-.640)	.880 (.810-.980)	1.28 (1.07-1.39)	1406
	01-02	.352 (.333-.373)	.380 (.350-.410)	.560 (.520-.590)	.860 (.800-.930)	1.15 (1.04-1.42)	1560
	03-04	.285 (.259-.313)	.300 (.270-.330)	.460 (.410-.510)	.690 (.660-.730)	1.06 (.890-1.14)	1543
	05-06	.351 (.332-.371)	.370 (.350-.390)	.550 (.520-.600)	.810 (.760-.880)	1.30 (1.05-1.47)	1520
	07-08	.343 (.326-.362)	.350 (.340-.370)	.530 (.500-.560)	.830 (.750-.920)	1.20 (1.00-1.38)	1857
	09-10	.351 (.322-.382)	.350 (.330-.380)	.570 (.520-.630)	.890 (.800-1.02)	1.35 (1.12-1.58)	2019
Gender Males	99-00	.371 (.331-.416)	.410 (.370-.450)	.580 (.540-.640)	.820 (.740-.900)	1.01 (.900-1.12)	1227
	01-02	.367 (.338-.399)	.390 (.360-.420)	.550 (.520-.600)	.790 (.740-.850)	1.05 (.960-1.14)	1335
	03-04	.294 (.270-.319)	.320 (.290-.340)	.480 (.440-.500)	.670 (.620-.710)	.870 (.790-.920)	1281
	05-06	.369 (.354-.383)	.380 (.370-.400)	.540 (.510-.570)	.760 (.690-.850)	1.06 (.910-1.27)	1271
	07-08	.350 (.330-.371)	.370 (.350-.390)	.530 (.500-.560)	.750 (.690-.820)	1.00 (.860-1.14)	1327
	09-10	.336 (.307-.368)	.360 (.330-.380)	.530 (.480-.570)	.750 (.690-.850)	.960 (.850-1.12)	1398
Females	99-00	.379 (.333-.431)	.410 (.340-.460)	.680 (.590-.790)	1.17 (.930-1.36)	1.50 (1.28-2.05)	1238
	01-02	.390 (.364-.417)	.430 (.400-.450)	.670 (.620-.700)	1.06 (.980-1.16)	1.46 (1.22-1.81)	1355
	03-04	.339 (.308-.372)	.340 (.310-.370)	.580 (.540-.610)	1.04 (.900-1.13)	1.47 (1.33-1.73)	1277
	05-06	.379 (.351-.409)	.410 (.370-.440)	.660 (.620-.700)	1.04 (.900-1.21)	1.54 (1.30-1.93)	1305
	07-08	.389 (.367-.411)	.390 (.360-.410)	.650 (.590-.690)	1.08 (.980-1.26)	1.43 (1.34-1.62)	1300
	09-10	.403 (.364-.447)	.400 (.360-.440)	.700 (.640-.770)	1.19 (1.05-1.36)	1.68 (1.51-2.11)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.07, 0.07, 0.08, 0.041, 0.041, and 0.041 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html

Urinary Cobalt (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.418 (.348-.502)	.470 (.370-.530)	.670 (.630-.770)	1.05 (.950-1.19)	1.47 (1.25-1.67)	884
	01-02	.398 (.373-.424)	.430 (.410-.450)	.650 (.600-.710)	.950 (.850-1.03)	1.20 (1.06-1.48)	683
	03-04	.374 (.350-.398)	.350 (.340-.390)	.580 (.530-.620)	1.09 (.920-1.16)	1.33 (1.16-1.73)	618
	05-06	.437 (.404-.473)	.450 (.420-.500)	.680 (.620-.720)	1.11 (.940-1.30)	1.58 (1.33-1.79)	652
	07-08	.396 (.349-.450)	.400 (.330-.480)	.610 (.560-.710)	.980 (.870-1.08)	1.26 (1.05-1.69)	515
	09-10	.378 (.351-.407)	.380 (.360-.410)	.590 (.560-.640)	.920 (.860-1.04)	1.24 (1.04-1.58)	613
Non-Hispanic blacks	99-00	.434 (.405-.465)	.430 (.390-.470)	.680 (.620-.760)	1.17 (1.04-1.26)	1.45 (1.23-2.04)	568
	01-02	.435 (.388-.487)	.420 (.380-.460)	.650 (.540-.810)	1.16 (.850-1.64)	1.75 (1.32-2.22)	667
	03-04	.380 (.348-.414)	.380 (.360-.410)	.600 (.540-.680)	1.01 (.890-1.09)	1.28 (1.01-2.03)	723
	05-06	.412 (.374-.453)	.410 (.360-.440)	.600 (.560-.670)	.930 (.830-1.11)	1.47 (1.12-2.00)	692
	07-08	.403 (.367-.443)	.390 (.360-.420)	.620 (.560-.740)	1.06 (.880-1.31)	1.57 (1.22-1.86)	589
	09-10	.368 (.335-.403)	.380 (.340-.400)	.590 (.520-.650)	.990 (.870-1.15)	1.47 (1.20-1.58)	544
Non-Hispanic whites	99-00	.369 (.316-.431)	.410 (.350-.460)	.630 (.550-.700)	.930 (.830-1.08)	1.29 (1.02-1.65)	822
	01-02	.359 (.327-.394)	.390 (.360-.430)	.590 (.520-.660)	.870 (.800-.950)	1.16 (1.04-1.32)	1132
	03-04	.301 (.270-.334)	.310 (.280-.340)	.500 (.460-.540)	.760 (.690-.850)	1.09 (.950-1.26)	1074
	05-06	.361 (.340-.384)	.380 (.360-.410)	.580 (.530-.630)	.860 (.800-.940)	1.30 (1.06-1.50)	1041
	07-08	.358 (.338-.379)	.370 (.350-.390)	.560 (.520-.600)	.900 (.780-1.00)	1.32 (1.02-1.46)	1095
	09-10	.369 (.335-.408)	.370 (.350-.400)	.600 (.540-.660)	.970 (.850-1.10)	1.40 (1.17-1.64)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.07, 0.07, 0.08, 0.041, 0.041, and 0.041 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html

Urinary Cobalt (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.326 (.309-.344)	.323 (.306-.347)	.543 (.510-.577)	.860 (.800-.979)	1.27 (1.09-1.45)	2504
	13-14	.391 (.373-.411)	.408 (.382-.435)	.687 (.662-.713)	1.04 (.976-1.09)	1.35 (1.23-1.48)	2664
Age group							
6-11 years	11-12	.397 (.356-.442)	.452 (.361-.510)	.704 (.616-.772)	1.00 (.846-1.38)	1.42 (1.00-1.78)	399
	13-14	.447 (.411-.487)	.479 (.408-.522)	.789 (.718-.877)	1.05 (.991-1.33)	1.55 (1.14-1.84)	402
12-19 years	11-12	.416 (.358-.484)	.429 (.341-.527)	.700 (.622-.806)	1.12 (.960-1.30)	1.56 (1.16-1.96)	390
	13-14	.549 (.462-.653)	.602 (.491-.701)	.936 (.783-1.05)	1.43 (1.08-1.75)	1.76 (1.49-3.07)	451
20 years and older	11-12	.307 (.288-.327)	.308 (.289-.328)	.491 (.457-.534)	.800 (.695-.940)	1.16 (.984-1.36)	1715
	13-14	.367 (.349-.386)	.382 (.357-.410)	.647 (.614-.673)	.930 (.882-1.04)	1.23 (1.17-1.34)	1811
Gender							
Males	11-12	.317 (.299-.336)	.316 (.293-.339)	.496 (.452-.547)	.715 (.659-.798)	.963 (.858-1.03)	1262
	13-14	.380 (.355-.407)	.414 (.374-.452)	.641 (.604-.684)	.883 (.820-.951)	1.11 (1.04-1.26)	1318
Females	11-12	.335 (.310-.361)	.340 (.308-.382)	.591 (.554-.643)	1.07 (.891-1.20)	1.49 (1.30-1.74)	1242
	13-14	.402 (.374-.432)	.398 (.366-.438)	.741 (.701-.789)	1.16 (1.06-1.23)	1.50 (1.36-1.75)	1346
Race/ethnicity							
Mexican Americans	11-12	.350 (.322-.381)	.350 (.307-.377)	.550 (.490-.598)	.891 (.721-1.18)	1.41 (1.14-2.08)	317
	13-14	.415 (.378-.456)	.439 (.400-.482)	.686 (.610-.766)	.918 (.866-1.09)	1.15 (1.06-1.56)	453
Non-Hispanic blacks	11-12	.340 (.311-.373)	.333 (.304-.358)	.519 (.489-.576)	.909 (.790-.986)	1.44 (1.06-1.60)	669
	13-14	.468 (.410-.535)	.471 (.402-.561)	.796 (.691-.877)	1.26 (1.03-1.39)	1.50 (1.35-1.67)	581
Non-Hispanic whites	11-12	.320 (.295-.348)	.320 (.296-.357)	.543 (.485-.591)	.858 (.750-.995)	1.20 (1.03-1.35)	820
	13-14	.374 (.349-.401)	.387 (.345-.429)	.681 (.638-.723)	1.02 (.930-1.10)	1.34 (1.21-1.56)	985
All Hispanics	11-12	.338 (.321-.357)	.326 (.306-.350)	.530 (.490-.583)	.891 (.763-1.14)	1.41 (1.10-1.81)	573
	13-14	.412 (.384-.442)	.442 (.409-.481)	.674 (.631-.731)	.964 (.891-1.07)	1.20 (1.09-1.36)	701
Asians	11-12	.317 (.282-.357)	.323 (.300-.355)	.519 (.445-.634)	.968 (.723-1.58)	1.78 (.980-2.31)	353
	13-14	.362 (.315-.416)	.354 (.312-.434)	.653 (.578-.789)	1.05 (.854-1.25)	1.57 (1.09-2.26)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.048 and 0.023.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html

Urinary Cobalt (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.353 (.319-.391)	.328 (.302-.365)	.515 (.457-.581)	.821 (.679-.963)	1.16 (.938-1.50)	2465
	01-02	.358 (.333-.384)	.335 (.313-.360)	.523 (.487-.562)	.844 (.750-.955)	1.16 (1.00-1.28)	2689
	03-04	.314 (.303-.325)	.290 (.278-.306)	.455 (.434-.481)	.737 (.703-.781)	1.02 (.911-1.10)	2558
	05-06	.368 (.353-.384)	.340 (.320-.360)	.520 (.490-.550)	.810 (.750-.920)	1.17 (.990-1.27)	2576
	07-08	.385 (.366-.406)	.360 (.350-.380)	.560 (.520-.590)	.870 (.760-.990)	1.22 (1.01-1.46)	2627
	09-10	.393 (.372-.415)	.370 (.350-.390)	.560 (.530-.600)	.890 (.830-.940)	1.29 (1.08-1.49)	2848
Age group 6-11 years	99-00	.547 (.467-.640)	.554 (.449-.647)	.774 (.626-.938)	1.00 (.833-1.49)	1.25 (.895-1.50)	340
	01-02	.552 (.508-.599)	.548 (.503-.609)	.756 (.660-.829)	1.00 (.900-1.27)	1.30 (1.03-1.73)	368
	03-04	.529 (.471-.593)	.500 (.463-.543)	.689 (.634-.750)	1.04 (.760-1.29)	1.29 (1.04-1.36)	290
	05-06	.523 (.494-.554)	.520 (.480-.570)	.720 (.660-.760)	.900 (.840-1.04)	1.27 (.980-1.45)	355
	07-08	.564 (.501-.635)	.580 (.500-.630)	.760 (.660-.910)	1.12 (.830-1.46)	1.39 (1.06-1.81)	394
	09-10	.578 (.538-.620)	.570 (.530-.620)	.760 (.690-.840)	1.06 (.920-1.21)	1.26 (1.06-1.58)	378
12-19 years	99-00	.391 (.353-.433)	.378 (.329-.407)	.537 (.469-.595)	.824 (.638-1.17)	1.44 (.821-3.54)	719
	01-02	.368 (.343-.396)	.352 (.327-.372)	.534 (.471-.611)	.851 (.673-.949)	1.06 (.932-1.24)	762
	03-04	.329 (.304-.355)	.316 (.277-.348)	.495 (.442-.561)	.738 (.630-.847)	.952 (.792-1.09)	725
	05-06	.392 (.360-.427)	.360 (.330-.400)	.530 (.480-.620)	.810 (.720-.920)	1.02 (.870-1.48)	701
	07-08	.414 (.382-.448)	.390 (.340-.450)	.610 (.520-.700)	.880 (.750-1.13)	1.17 (.890-1.35)	376
	09-10	.435 (.398-.476)	.410 (.370-.470)	.610 (.550-.700)	.960 (.790-1.07)	1.30 (1.00-1.53)	451
20 years and older	99-00	.328 (.297-.362)	.306 (.280-.328)	.471 (.428-.522)	.727 (.632-.905)	1.12 (.861-1.36)	1406
	01-02	.337 (.313-.363)	.313 (.294-.337)	.475 (.435-.513)	.792 (.704-.955)	1.15 (.963-1.33)	1559
	03-04	.293 (.282-.304)	.271 (.257-.286)	.400 (.380-.429)	.691 (.616-.744)	.976 (.829-1.10)	1543
	05-06	.350 (.334-.367)	.320 (.300-.340)	.490 (.450-.520)	.780 (.690-.940)	1.17 (.970-1.31)	1520
	07-08	.366 (.348-.384)	.340 (.330-.360)	.510 (.480-.540)	.830 (.720-.960)	1.19 (.980-1.47)	1857
	09-10	.371 (.350-.394)	.340 (.320-.360)	.520 (.490-.550)	.840 (.750-.930)	1.29 (1.02-1.52)	2019
Gender Males	99-00	.290 (.259-.324)	.279 (.248-.301)	.402 (.365-.449)	.608 (.534-.728)	.838 (.667-1.10)	1227
	01-02	.290 (.272-.310)	.278 (.256-.297)	.392 (.361-.425)	.644 (.574-.707)	.848 (.786-.929)	1334
	03-04	.247 (.237-.259)	.234 (.215-.250)	.333 (.313-.352)	.513 (.476-.585)	.700 (.630-.753)	1281
	05-06	.302 (.289-.317)	.290 (.270-.300)	.410 (.370-.440)	.610 (.580-.640)	.770 (.710-.850)	1271
	07-08	.313 (.298-.329)	.300 (.280-.310)	.420 (.400-.440)	.630 (.580-.680)	.830 (.680-1.02)	1327
	09-10	.306 (.290-.323)	.290 (.280-.300)	.420 (.390-.450)	.630 (.570-.690)	.810 (.720-.920)	1398
Females	99-00	.426 (.378-.479)	.407 (.362-.457)	.606 (.550-.694)	.960 (.781-1.29)	1.50 (1.11-1.83)	1238
	01-02	.435 (.404-.468)	.408 (.382-.438)	.635 (.560-.708)	1.00 (.879-1.19)	1.29 (1.12-1.60)	1355
	03-04	.393 (.378-.409)	.361 (.342-.381)	.554 (.513-.615)	.937 (.850-1.00)	1.29 (1.10-1.33)	1277
	05-06	.445 (.423-.468)	.420 (.400-.440)	.630 (.590-.700)	.990 (.900-1.17)	1.34 (1.18-1.60)	1305
	07-08	.470 (.442-.499)	.450 (.430-.480)	.690 (.630-.750)	1.09 (.930-1.27)	1.46 (1.26-1.69)	1300
	09-10	.498 (.465-.534)	.460 (.450-.480)	.690 (.650-.720)	1.09 (.990-1.33)	1.64 (1.34-2.15)	1450

Biomonitoring Summary

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Urinary Cobalt (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.386 (.339-.439)	.376 (.333-.419)	.598 (.500-.669)	.898 (.826-1.00)	1.23 (1.11-1.35)	884
	01-02	.388 (.361-.417)	.361 (.333-.394)	.591 (.500-.662)	.872 (.777-.990)	1.10 (.990-1.27)	682
	03-04	.346 (.326-.368)	.327 (.296-.349)	.542 (.487-.594)	.850 (.753-.963)	1.14 (.963-1.35)	618
	05-06	.411 (.388-.436)	.380 (.360-.400)	.580 (.520-.650)	.900 (.820-1.02)	1.19 (1.05-1.35)	652
	07-08	.396 (.348-.450)	.370 (.330-.410)	.560 (.470-.690)	.900 (.770-1.12)	1.17 (.990-1.54)	515
	09-10	.396 (.367-.427)	.380 (.340-.420)	.590 (.530-.650)	.930 (.820-1.03)	1.22 (1.04-1.30)	613
Non-Hispanic blacks	99-00	.282 (.275-.289)	.257 (.243-.279)	.417 (.378-.462)	.723 (.600-.785)	.975 (.757-1.60)	568
	01-02	.298 (.275-.323)	.268 (.251-.296)	.444 (.393-.505)	.728 (.582-.917)	1.03 (.740-1.55)	667
	03-04	.273 (.248-.300)	.259 (.239-.281)	.388 (.344-.461)	.700 (.563-.842)	.964 (.733-1.15)	723
	05-06	.299 (.281-.318)	.280 (.240-.300)	.420 (.380-.460)	.700 (.570-.780)	.950 (.790-1.17)	692
	07-08	.295 (.277-.314)	.270 (.260-.290)	.420 (.390-.450)	.710 (.570-.860)	1.07 (.850-1.28)	589
	09-10	.291 (.271-.314)	.280 (.240-.310)	.420 (.380-.480)	.700 (.610-.750)	.840 (.750-1.06)	544
Non-Hispanic whites	99-00	.369 (.324-.421)	.352 (.313-.387)	.533 (.452-.611)	.861 (.667-1.16)	1.25 (.895-1.57)	822
	01-02	.362 (.331-.396)	.343 (.313-.368)	.523 (.479-.562)	.830 (.736-.983)	1.16 (.983-1.33)	1132
	03-04	.317 (.301-.334)	.291 (.274-.309)	.457 (.425-.488)	.738 (.683-.804)	1.00 (.857-1.13)	1074
	05-06	.376 (.357-.395)	.350 (.330-.370)	.520 (.490-.580)	.810 (.710-.950)	1.18 (.950-1.43)	1041
	07-08	.401 (.380-.423)	.380 (.360-.400)	.590 (.530-.630)	.890 (.760-1.06)	1.27 (.980-1.55)	1095
	09-10	.413 (.388-.440)	.390 (.360-.410)	.580 (.530-.620)	.910 (.830-.980)	1.33 (1.08-1.58)	1225

Biomonitoring Summary

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Urinary Cobalt (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.370 (.349-.391)	.347 (.330-.371)	.557 (.513-.593)	.880 (.768-1.03)	1.29 (1.12-1.46)	2502
	13-14	.452 (.437-.466)	.443 (.427-.454)	.656 (.625-.688)	.969 (.920-1.03)	1.31 (1.18-1.47)	2663
Age group							
6-11 years	11-12	.567 (.535-.602)	.571 (.526-.611)	.778 (.713-.834)	1.19 (.974-1.30)	1.38 (1.10-1.67)	398
	13-14	.667 (.614-.725)	.646 (.593-.704)	.914 (.853-.986)	1.26 (1.09-1.40)	1.57 (1.24-2.13)	402
12-19 years	11-12	.398 (.349-.455)	.373 (.316-.441)	.585 (.454-.700)	.832 (.688-1.09)	1.26 (.830-2.77)	390
	13-14	.497 (.463-.534)	.480 (.446-.525)	.692 (.597-.769)	.920 (.819-1.10)	1.30 (1.09-1.61)	451
20 years and older	11-12	.349 (.330-.369)	.327 (.300-.341)	.508 (.467-.552)	.803 (.711-.982)	1.24 (1.10-1.50)	1714
	13-14	.428 (.412-.444)	.417 (.390-.441)	.607 (.580-.643)	.929 (.853-.994)	1.27 (1.10-1.46)	1810
Gender							
Males	11-12	.297 (.280-.315)	.276 (.254-.294)	.426 (.397-.456)	.637 (.564-.750)	.865 (.748-1.17)	1261
	13-14	.379 (.362-.398)	.368 (.344-.390)	.529 (.493-.560)	.758 (.689-.852)	1.02 (.871-1.29)	1317
Females	11-12	.455 (.418-.496)	.433 (.407-.466)	.660 (.600-.729)	1.10 (.900-1.36)	1.54 (1.28-1.84)	1241
	13-14	.534 (.515-.553)	.532 (.502-.549)	.774 (.733-.816)	1.12 (.991-1.27)	1.48 (1.27-1.77)	1346
Race/ethnicity							
Mexican Americans	11-12	.394 (.357-.435)	.374 (.322-.400)	.576 (.531-.637)	1.02 (.877-1.24)	1.50 (.988-2.02)	317
	13-14	.474 (.449-.500)	.448 (.425-.473)	.669 (.610-.721)	.971 (.888-1.03)	1.28 (1.03-1.51)	453
Non-Hispanic blacks	11-12	.265 (.248-.282)	.244 (.222-.267)	.401 (.342-.457)	.645 (.559-.816)	1.02 (.737-1.41)	669
	13-14	.356 (.332-.382)	.337 (.315-.377)	.545 (.490-.624)	.841 (.754-.952)	1.08 (.930-1.22)	581
Non-Hispanic whites	11-12	.387 (.360-.417)	.365 (.336-.400)	.574 (.513-.615)	.860 (.749-1.09)	1.29 (1.04-1.57)	818
	13-14	.461 (.442-.480)	.447 (.430-.469)	.669 (.613-.703)	.987 (.912-1.13)	1.32 (1.19-1.61)	984
All Hispanics	11-12	.379 (.351-.409)	.361 (.322-.384)	.572 (.520-.626)	.944 (.809-1.15)	1.33 (1.13-1.91)	573
	13-14	.460 (.444-.475)	.448 (.429-.464)	.663 (.619-.703)	.952 (.888-1.00)	1.17 (1.03-1.35)	701
Asians	11-12	.424 (.378-.475)	.386 (.329-.457)	.659 (.531-.785)	1.18 (.907-1.51)	1.61 (1.14-2.72)	353
	13-14	.567 (.516-.624)	.540 (.482-.567)	.814 (.670-.931)	1.38 (1.07-1.97)	2.09 (1.39-3.78)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Cobalt_BiomonitoringSummary.html

Serum Copper (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	114 (111-116)	112 (109-114)	130 (127-134)	152 (145-162)	169 (161-183)	2329
	13-14	115 (112-118)	114 (110-117)	132 (129-135)	155 (150-160)	171 (165-180)	2520
Age group							
6-11 years	11-12	120 (117-124)	121 (115-126)	135 (130-140)	154 (141-161)	164 (154-175)	316
	13-14	119 (114-123)	119 (114-123)	132 (127-141)	148 (143-155)	157 (148-175)	339
12-19 years	11-12	106 (103-110)	103 (99.7-106)	120 (115-125)	143 (130-161)	169 (141-199)	366
	13-14	106 (103-108)	104 (101-106)	120 (116-125)	141 (132-147)	164 (146-181)	418
20 years and older	11-12	114 (111-117)	112 (109-115)	131 (127-136)	153 (145-164)	171 (162-184)	1647
	13-14	116 (113-119)	114 (111-118)	134 (131-136)	157 (150-164)	175 (165-183)	1763
Gender							
Males	11-12	103 (101-106)	103 (101-105)	116 (114-119)	132 (126-139)	143 (135-155)	1162
	13-14	103 (99.8-107)	103 (101-106)	117 (113-122)	131 (125-137)	141 (134-148)	1235
Females	11-12	124 (121-127)	123 (119-125)	142 (137-147)	165 (160-172)	187 (173-207)	1167
	13-14	127 (124-130)	124 (122-128)	145 (142-149)	168 (162-176)	191 (175-214)	1285
Race/ethnicity							
Mexican Americans	11-12	111 (107-116)	109 (105-115)	125 (122-131)	144 (137-152)	156 (148-164)	285
	13-14	116 (113-120)	116 (110-119)	135 (128-142)	157 (147-164)	174 (162-182)	431
Non-Hispanic blacks	11-12	126 (122-130)	127 (121-130)	147 (142-151)	168 (161-180)	191 (176-214)	620
	13-14	125 (121-129)	124 (120-128)	147 (143-151)	165 (159-170)	176 (169-188)	516
Non-Hispanic whites	11-12	113 (110-115)	111 (109-113)	128 (125-132)	150 (141-163)	169 (155-192)	780
	13-14	113 (110-116)	111 (109-114)	130 (125-133)	150 (144-158)	168 (158-188)	975
All Hispanics	11-12	112 (108-115)	109 (106-115)	128 (124-132)	145 (139-152)	158 (151-164)	525
	13-14	117 (113-121)	116 (111-120)	136 (129-142)	157 (148-164)	171 (162-182)	666
Asians	11-12	105 (102-109)	101 (96.2-107)	120 (114-125)	143 (132-151)	166 (150-198)	323
	13-14	107 (104-111)	104 (99.8-108)	125 (116-130)	146 (132-162)	162 (145-186)	267

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.5 and 2.5, respectively.

Blood Lead (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	1.66 (1.60-1.72)	1.60 (1.60-1.70)	2.50 (2.40-2.60)	3.80 (3.60-4.00)	5.00 (4.70-5.50)	7970
	01-02	1.45 (1.39-1.51)	1.40 (1.40-1.50)	2.20 (2.10-2.30)	3.40 (3.20-3.60)	4.50 (4.20-4.70)	8945
	03-04	1.43 (1.36-1.50)	1.40 (1.30-1.50)	2.10 (2.10-2.20)	3.20 (3.10-3.30)	4.20 (3.90-4.40)	8373
	05-06	1.29 (1.23-1.36)	1.27 (1.20-1.34)	2.01 (1.91-2.11)	3.05 (2.86-3.22)	3.91 (3.64-4.18)	8407
	07-08	1.27 (1.21-1.34)	1.22 (1.18-1.30)	1.90 (1.80-2.00)	2.80 (2.67-2.96)	3.70 (3.50-3.90)	8266
	09-10	1.12 (1.08-1.16)	1.07 (1.03-1.12)	1.70 (1.62-1.77)	2.58 (2.45-2.71)	3.34 (3.14-3.57)	8793
Age group 1-5 years	99-00	2.23 (1.96-2.53)	2.20 (1.90-2.50)	3.40 (2.80-3.90)	4.90 (4.00-6.60)	7.00 (6.10-8.30)	723
	01-02	1.70 (1.55-1.87)	1.60 (1.50-1.80)	2.50 (2.20-2.90)	4.20 (3.50-5.20)	5.80 (4.70-6.90)	898
	03-04	1.77 (1.60-1.95)	1.70 (1.50-1.90)	2.50 (2.30-2.80)	3.90 (3.30-4.60)	5.10 (4.10-6.60)	911
	05-06	1.46 (1.36-1.57)	1.43 (1.34-1.55)	2.10 (1.97-2.20)	2.98 (2.72-3.32)	3.80 (3.49-4.54)	968
	07-08	1.51 (1.37-1.66)	1.43 (1.30-1.60)	2.20 (1.98-2.31)	3.20 (2.65-3.85)	4.10 (3.40-5.19)	817
	09-10	1.17 (1.08-1.26)	1.15 (1.03-1.27)	1.70 (1.50-1.87)	2.39 (2.08-2.65)	3.37 (2.63-4.11)	836
6-11 years	99-00	1.51 (1.36-1.66)	1.40 (1.30-1.60)	2.10 (1.80-2.50)	3.30 (2.80-3.80)	4.50 (3.40-6.20)	905
	01-02	1.25 (1.14-1.36)	1.20 (1.00-1.30)	1.70 (1.60-2.00)	2.80 (2.50-3.10)	3.70 (3.00-4.70)	1044
	03-04	1.25 (1.12-1.39)	1.20 (1.10-1.40)	1.80 (1.50-2.10)	2.60 (2.10-3.10)	3.30 (2.50-4.60)	856
	05-06	1.02 (.948-1.10)	.970 (.890-1.01)	1.40 (1.28-1.55)	2.06 (1.80-2.72)	3.00 (2.26-3.81)	934
	07-08	.988 (.914-1.07)	.960 (.880-1.07)	1.31 (1.22-1.49)	1.90 (1.70-2.11)	2.50 (2.10-2.88)	1011
	09-10	.838 (.792-.887)	.810 (.740-.840)	1.13 (1.06-1.21)	1.64 (1.45-1.84)	2.01 (1.88-2.25)	1009
12-19 years	99-00	1.10 (1.04-1.17)	1.10 (1.00-1.20)	1.50 (1.40-1.70)	2.30 (2.10-2.40)	2.90 (2.70-3.00)	2135
	01-02	.942 (.899-.986)	.900 (.900-1.00)	1.30 (1.20-1.40)	2.00 (1.90-2.10)	2.70 (2.40-2.90)	2231
	03-04	.946 (.878-1.02)	.900 (.800-1.00)	1.30 (1.20-1.40)	1.90 (1.70-2.10)	2.60 (2.20-3.00)	2081
	05-06	.797 (.746-.852)	.740 (.690-.790)	1.08 (.990-1.20)	1.69 (1.50-1.85)	2.23 (1.98-2.46)	1996
	07-08	.800 (.744-.859)	.760 (.720-.820)	1.04 (.980-1.16)	1.50 (1.35-1.70)	1.90 (1.70-2.32)	1074
	09-10	.680 (.636-.727)	.660 (.590-.700)	.910 (.840-.990)	1.29 (1.19-1.43)	1.72 (1.52-1.86)	1183
20 years and older	99-00	1.75 (1.68-1.81)	1.70 (1.60-1.80)	2.60 (2.50-2.70)	3.90 (3.70-4.10)	5.20 (4.80-5.60)	4207
	01-02	1.56 (1.49-1.62)	1.60 (1.50-1.60)	2.30 (2.30-2.40)	3.60 (3.40-3.70)	4.60 (4.30-5.00)	4772
	03-04	1.52 (1.45-1.60)	1.50 (1.40-1.60)	2.30 (2.20-2.40)	3.30 (3.20-3.50)	4.30 (4.00-4.60)	4525
	05-06	1.41 (1.34-1.48)	1.41 (1.33-1.48)	2.17 (2.04-2.31)	3.22 (3.05-3.43)	4.12 (3.82-4.38)	4509
	07-08	1.38 (1.31-1.46)	1.34 (1.26-1.42)	2.06 (1.94-2.18)	3.00 (2.80-3.14)	3.90 (3.68-4.23)	5364
	09-10	1.23 (1.19-1.28)	1.20 (1.14-1.25)	1.85 (1.78-1.93)	2.77 (2.60-2.93)	3.57 (3.29-3.84)	5765
Gender Males	99-00	2.01 (1.93-2.09)	1.90 (1.90-2.00)	2.90 (2.80-3.00)	4.50 (4.10-4.80)	6.00 (5.50-6.50)	3913
	01-02	1.78 (1.71-1.86)	1.80 (1.70-1.80)	2.70 (2.50-2.80)	3.90 (3.80-4.10)	5.40 (5.00-5.50)	4339
	03-04	1.69 (1.62-1.75)	1.60 (1.50-1.70)	2.50 (2.40-2.60)	3.70 (3.40-3.90)	4.80 (4.50-5.20)	4132
	05-06	1.52 (1.42-1.62)	1.49 (1.41-1.58)	2.30 (2.12-2.51)	3.48 (3.20-3.75)	4.36 (4.04-4.76)	4092
	07-08	1.47 (1.39-1.56)	1.40 (1.32-1.50)	2.17 (2.00-2.30)	3.21 (3.01-3.53)	4.41 (4.10-4.88)	4147
	09-10	1.31 (1.25-1.36)	1.26 (1.20-1.32)	1.96 (1.89-2.03)	2.93 (2.72-3.15)	3.84 (3.54-4.39)	4366
Females	99-00	1.37 (1.32-1.43)	1.30 (1.30-1.40)	2.00 (1.90-2.10)	3.10 (2.90-3.30)	4.00 (3.80-4.20)	4057
	01-02	1.19 (1.14-1.25)	1.20 (1.10-1.20)	1.80 (1.70-1.90)	2.60 (2.50-2.80)	3.60 (3.10-4.00)	4606
	03-04	1.22 (1.14-1.31)	1.20 (1.10-1.30)	1.80 (1.70-2.00)	2.70 (2.50-3.00)	3.50 (3.10-3.80)	4241
	05-06	1.11 (1.05-1.17)	1.06 (.980-1.15)	1.73 (1.61-1.84)	2.59 (2.44-2.74)	3.25 (3.12-3.44)	4315
	07-08	1.11 (1.06-1.16)	1.09 (1.00-1.14)	1.64 (1.54-1.74)	2.41 (2.35-2.50)	3.00 (2.81-3.20)	4119
	09-10	.966 (.929-1.01)	.940 (.890-.970)	1.43 (1.36-1.53)	2.18 (2.08-2.30)	2.81 (2.63-2.93)	4427

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.28, 0.25, 0.25, and 0.25 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Blood Lead (1999 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.83 (1.75-1.91)	1.80 (1.70-1.90)	2.80 (2.60-2.90)	4.20 (3.90-4.60)	5.80 (5.10-6.60)	2742
	01-02	1.46 (1.34-1.60)	1.50 (1.30-1.60)	2.30 (2.10-2.60)	3.60 (3.40-4.20)	5.40 (4.40-6.70)	2268
	03-04	1.55 (1.43-1.69)	1.50 (1.40-1.60)	2.30 (2.10-2.50)	3.50 (2.90-4.20)	4.90 (3.90-6.40)	2085
	05-06	1.29 (1.21-1.38)	1.26 (1.15-1.36)	2.00 (1.87-2.20)	3.16 (2.79-3.58)	4.22 (3.47-5.36)	2236
	07-08	1.25 (1.15-1.36)	1.20 (1.10-1.31)	1.88 (1.70-2.06)	2.81 (2.60-3.20)	3.92 (3.20-5.00)	1712
	09-10	1.14 (1.03-1.28)	1.04 (.940-1.18)	1.76 (1.52-1.99)	2.93 (2.63-3.30)	3.92 (3.60-4.69)	1966
Non-Hispanic blacks	99-00	1.87 (1.75-2.00)	1.80 (1.70-2.00)	2.80 (2.60-3.00)	4.30 (4.00-4.60)	5.70 (5.20-6.10)	1842
	01-02	1.65 (1.52-1.80)	1.60 (1.40-1.70)	2.60 (2.30-2.90)	4.20 (3.80-4.70)	5.80 (5.30-6.50)	2219
	03-04	1.69 (1.52-1.89)	1.60 (1.40-1.80)	2.60 (2.20-3.00)	4.10 (3.50-4.70)	5.30 (4.60-6.60)	2293
	05-06	1.39 (1.26-1.53)	1.31 (1.19-1.45)	2.16 (1.95-2.42)	3.48 (3.19-3.80)	4.65 (4.21-5.14)	2193
	07-08	1.39 (1.30-1.48)	1.30 (1.20-1.42)	2.10 (2.00-2.20)	3.22 (3.08-3.50)	4.50 (4.00-4.80)	1746
	09-10	1.24 (1.18-1.30)	1.19 (1.12-1.25)	1.87 (1.76-1.99)	2.90 (2.68-3.18)	3.86 (3.57-4.29)	1593
Non-Hispanic whites	99-00	1.62 (1.55-1.69)	1.60 (1.50-1.70)	2.40 (2.30-2.50)	3.60 (3.40-3.90)	5.00 (4.40-5.70)	2716
	01-02	1.43 (1.37-1.48)	1.40 (1.30-1.50)	2.20 (2.10-2.20)	3.20 (3.10-3.40)	4.20 (3.90-4.50)	3806
	03-04	1.37 (1.32-1.43)	1.30 (1.30-1.40)	2.10 (2.00-2.10)	3.00 (2.80-3.20)	3.90 (3.60-4.30)	3478
	05-06	1.28 (1.19-1.37)	1.27 (1.17-1.38)	1.97 (1.86-2.14)	2.99 (2.73-3.25)	3.82 (3.41-4.20)	3310
	07-08	1.24 (1.16-1.33)	1.20 (1.10-1.30)	1.86 (1.72-2.00)	2.70 (2.54-2.90)	3.50 (3.20-3.89)	3461
	09-10	1.10 (1.04-1.16)	1.07 (1.00-1.15)	1.67 (1.59-1.76)	2.49 (2.35-2.63)	3.14 (2.99-3.36)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.28, 0.25, 0.25, and 0.25 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Blood Lead (2011 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.973 (.916-1.04)	.930 (.880-.980)	1.52 (1.41-1.61)	2.38 (2.17-2.61)	3.16 (2.77-3.68)	7920
	13-14	.858 (.813-.906)	.830 (.780-.870)	1.32 (1.24-1.42)	2.10 (1.96-2.30)	2.81 (2.49-3.14)	5215
	15-16	.820 (.772-.872)	.780 (.740-.840)	1.32 (1.21-1.42)	2.14 (2.02-2.24)	2.75 (2.50-2.98)	4988
Age group							
1-5 years	11-12	.970 (.877-1.07)	.950 (.870-1.04)	1.34 (1.20-1.65)	2.26 (1.88-2.65)	2.91 (2.41-3.83)	713
	13-14	.782 (.705-.869)	.740 (.680-.800)	1.08 (.940-1.24)	1.58 (1.33-1.90)	2.24 (1.68-2.64)	818
	15-16	.758 (.675-.850)	.690 (.610-.790)	1.10 (.950-1.32)	1.86 (1.50-2.65)	2.76 (1.94-3.81)	790
6-11 years	11-12	.681 (.623-.744)	.640 (.600-.700)	.930 (.820-1.05)	1.34 (1.14-1.60)	1.89 (1.36-2.94)	1048
	13-14	.567 (.529-.607)	.530 (.500-.570)	.760 (.700-.820)	1.13 (1.01-1.23)	1.42 (1.21-1.83)	1075
	15-16	.571 (.523-.623)	.550 (.510-.600)	.780 (.720-.830)	1.18 (.970-1.44)	1.59 (1.24-2.24)	1023
12-19 years	11-12	.554 (.511-.601)	.530 (.490-.570)	.740 (.660-.830)	1.09 (.960-1.19)	1.31 (1.16-1.65)	1129
	13-14	.506 (.464-.551)	.460 (.420-.500)	.670 (.600-.750)	1.13 (.870-1.53)	1.69 (1.27-2.06)	627
	15-16	.467 (.433-.504)	.450 (.410-.490)	.680 (.610-.730)	.930 (.820-1.03)	1.17 (.990-1.36)	565
20 years and older	11-12	1.09 (1.03-1.16)	1.05 (1.00-1.12)	1.67 (1.56-1.79)	2.56 (2.33-2.77)	3.36 (2.98-3.93)	5030
	13-14	.967 (.921-1.02)	.940 (.900-.980)	1.45 (1.37-1.55)	2.26 (2.09-2.49)	3.03 (2.65-3.55)	2695
	15-16	.920 (.862-.982)	.880 (.810-.960)	1.46 (1.35-1.59)	2.30 (2.15-2.44)	2.89 (2.65-3.07)	2610
Gender							
Males	11-12	1.13 (1.06-1.21)	1.07 (1.01-1.14)	1.74 (1.63-1.88)	2.73 (2.48-3.01)	3.68 (3.18-4.22)	3968
	13-14	.994 (.919-1.08)	.940 (.890-1.00)	1.48 (1.35-1.61)	2.41 (2.07-2.90)	3.47 (2.89-4.32)	2587
	15-16	.921 (.864-.981)	.860 (.800-.930)	1.46 (1.33-1.60)	2.41 (2.18-2.62)	2.93 (2.75-3.26)	2488
Females	11-12	.842 (.796-.890)	.820 (.780-.860)	1.30 (1.22-1.39)	1.98 (1.83-2.22)	2.59 (2.32-2.94)	3952
	13-14	.746 (.715-.777)	.730 (.700-.760)	1.19 (1.11-1.28)	1.86 (1.69-2.02)	2.33 (2.24-2.42)	2628
	15-16	.735 (.679-.795)	.720 (.650-.770)	1.16 (1.04-1.31)	1.88 (1.66-2.13)	2.39 (2.21-2.65)	2500
Race/ethnicity							
Mexican Americans	11-12	.838 (.767-.916)	.780 (.690-.880)	1.27 (1.15-1.40)	2.05 (1.81-2.36)	3.06 (2.34-3.59)	1077
	13-14	.746 (.685-.813)	.690 (.650-.750)	1.17 (1.10-1.28)	1.88 (1.61-2.04)	2.38 (2.03-2.74)	969
	15-16	.704 (.659-.752)	.680 (.610-.730)	1.10 (.970-1.22)	1.77 (1.67-1.96)	2.39 (2.01-3.10)	994
Non-Hispanic blacks	11-12	.998 (.947-1.05)	.910 (.850-.990)	1.53 (1.45-1.60)	2.58 (2.31-2.91)	3.72 (3.04-4.58)	2195
	13-14	.871 (.787-.963)	.830 (.720-.940)	1.39 (1.27-1.48)	2.17 (2.00-2.38)	3.03 (2.48-4.00)	1119
	15-16	.856 (.763-.962)	.790 (.700-.890)	1.32 (1.11-1.60)	2.19 (1.86-2.80)	3.11 (2.76-3.39)	1070
Non-Hispanic whites	11-12	.993 (.914-1.08)	.960 (.880-1.03)	1.56 (1.40-1.73)	2.43 (2.11-2.74)	3.14 (2.67-3.85)	2493
	13-14	.882 (.820-.950)	.870 (.800-.920)	1.34 (1.24-1.48)	2.20 (1.94-2.48)	2.97 (2.43-3.58)	1848
	15-16	.835 (.774-.900)	.790 (.750-.860)	1.35 (1.23-1.49)	2.21 (2.03-2.36)	2.72 (2.39-2.98)	1511
All Hispanics	11-12	.855 (.793-.922)	.820 (.750-.880)	1.27 (1.18-1.39)	2.00 (1.86-2.23)	2.84 (2.41-3.34)	1931
	13-14	.742 (.695-.793)	.690 (.660-.730)	1.14 (1.08-1.24)	1.80 (1.62-1.99)	2.36 (2.03-2.72)	1481
	15-16	.703 (.658-.750)	.670 (.620-.720)	1.10 (1.01-1.18)	1.73 (1.56-2.00)	2.39 (2.00-2.97)	1664
Asians	11-12	1.15 (1.06-1.24)	1.14 (1.02-1.26)	1.70 (1.56-1.86)	2.56 (2.36-2.72)	3.28 (2.80-3.65)	1005
	13-14	1.01 (.923-1.11)	1.02 (.900-1.19)	1.48 (1.35-1.66)	2.25 (2.06-2.39)	2.67 (2.37-2.86)	510
	15-16	1.07 (.976-1.18)	1.08 (.920-1.20)	1.65 (1.47-1.96)	2.62 (2.11-2.92)	3.07 (2.76-3.49)	479

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, and 15-16 are 0.25, 0.07, and 0.07 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.766 (.708-.828)	.800 (.800-.900)	1.40 (1.30-1.50)	2.20 (2.00-2.30)	2.90 (2.60-3.30)	2465
	01-02	.677 (.637-.718)	.700 (.700-.800)	1.20 (1.20-1.30)	2.00 (1.90-2.20)	2.70 (2.50-2.80)	2690
	03-04	.636 (.595-.680)	.640 (.580-.690)	1.04 (.960-1.12)	1.73 (1.52-1.86)	2.29 (2.03-2.62)	2558
	05-06	.554 (.523-.587)	.570 (.540-.600)	.990 (.910-1.05)	1.58 (1.44-1.73)	2.14 (1.94-2.45)	2576
	07-08	.493 (.467-.520)	.500 (.470-.530)	.850 (.790-.910)	1.38 (1.23-1.58)	1.97 (1.75-2.17)	2627
	09-10	.458 (.441-.476)	.470 (.450-.480)	.790 (.750-.830)	1.24 (1.11-1.38)	1.65 (1.46-1.84)	2848
Age group 6-11 years	99-00	1.07 (.955-1.20)	1.10 (.900-1.30)	1.50 (1.40-1.70)	2.40 (1.80-3.10)	3.40 (2.40-5.00)	340
	01-02	.753 (.661-.857)	.800 (.600-.900)	1.20 (1.10-1.40)	2.10 (1.60-2.40)	2.60 (2.10-3.70)	368
	03-04	.795 (.671-.941)	.790 (.640-.900)	1.35 (.970-1.86)	2.27 (1.62-4.09)	3.33 (2.23-4.41)	290
	05-06	.508 (.447-.579)	.510 (.440-.560)	.740 (.620-.980)	1.33 (1.00-1.86)	1.90 (1.33-2.60)	355
	07-08	.494 (.411-.593)	.520 (.410-.590)	.790 (.660-.900)	1.23 (.980-1.73)	1.90 (1.51-2.18)	394
	09-10	.443 (.399-.493)	.460 (.430-.490)	.710 (.630-.820)	1.09 (.880-1.33)	1.40 (1.06-1.82)	378
12-19 years	99-00	.659 (.579-.749)	.700 (.600-.800)	1.10 (.900-1.30)	1.80 (1.40-2.20)	2.20 (1.90-2.80)	719
	01-02	.564 (.526-.605)	.600 (.500-.600)	1.00 (.800-1.10)	1.60 (1.40-1.70)	2.00 (1.80-2.40)	762
	03-04	.604 (.553-.660)	.630 (.570-.680)	.920 (.810-1.02)	1.32 (1.14-1.80)	1.86 (1.44-2.29)	725
	05-06	.472 (.421-.530)	.490 (.450-.540)	.780 (.710-.830)	1.19 (1.10-1.45)	1.65 (1.34-1.80)	701
	07-08	.386 (.346-.431)	.380 (.350-.410)	.640 (.560-.720)	1.03 (.870-1.24)	1.38 (1.09-1.91)	376
	09-10	.320 (.283-.361)	.320 (.270-.370)	.530 (.460-.630)	.830 (.710-1.10)	1.16 (.860-1.37)	451
20 years and older	99-00	.752 (.691-.818)	.800 (.700-.900)	1.40 (1.30-1.50)	2.20 (2.00-2.40)	2.90 (2.60-3.30)	1406
	01-02	.688 (.641-.738)	.700 (.700-.800)	1.20 (1.20-1.30)	2.00 (1.90-2.30)	2.80 (2.50-2.90)	1560
	03-04	.625 (.579-.674)	.620 (.560-.700)	1.04 (.960-1.11)	1.70 (1.52-1.80)	2.21 (2.04-2.49)	1543
	05-06	.574 (.539-.612)	.600 (.560-.640)	1.02 (.970-1.13)	1.65 (1.53-1.81)	2.21 (1.99-2.57)	1520
	07-08	.512 (.485-.540)	.530 (.490-.560)	.900 (.820-.950)	1.49 (1.29-1.64)	2.01 (1.78-2.33)	1857
	09-10	.486 (.465-.507)	.490 (.470-.520)	.830 (.780-.880)	1.32 (1.16-1.46)	1.71 (1.52-2.03)	2019
Gender Males	99-00	.923 (.822-1.04)	.900 (.900-1.00)	1.60 (1.40-1.80)	2.50 (2.20-2.90)	3.40 (2.90-3.80)	1227
	01-02	.808 (.757-.862)	.800 (.800-.900)	1.40 (1.30-1.50)	2.50 (2.20-2.70)	3.20 (2.90-3.50)	1335
	03-04	.731 (.680-.785)	.730 (.680-.800)	1.17 (1.07-1.27)	2.03 (1.78-2.22)	2.66 (2.33-2.91)	1281
	05-06	.672 (.638-.707)	.690 (.620-.760)	1.16 (1.04-1.28)	1.78 (1.60-2.00)	2.45 (2.00-2.97)	1271
	07-08	.560 (.518-.606)	.570 (.530-.620)	.930 (.840-1.02)	1.63 (1.36-1.97)	2.30 (1.97-3.07)	1327
	09-10	.527 (.491-.566)	.540 (.480-.580)	.880 (.820-.960)	1.41 (1.25-1.58)	1.83 (1.62-2.21)	1398
Females	99-00	.642 (.589-.701)	.700 (.600-.800)	1.20 (1.10-1.30)	1.90 (1.60-2.20)	2.40 (2.10-3.00)	1238
	01-02	.573 (.535-.613)	.600 (.600-.600)	1.10 (1.00-1.10)	1.60 (1.50-1.80)	2.20 (1.90-2.40)	1355
	03-04	.558 (.506-.616)	.540 (.480-.620)	.920 (.820-1.04)	1.49 (1.24-1.75)	1.82 (1.59-2.30)	1277
	05-06	.461 (.425-.499)	.460 (.430-.510)	.810 (.730-.880)	1.27 (1.17-1.46)	1.86 (1.54-2.17)	1305
	07-08	.436 (.412-.461)	.430 (.400-.480)	.760 (.690-.830)	1.22 (1.05-1.34)	1.67 (1.44-1.81)	1300
	09-10	.400 (.378-.424)	.420 (.390-.440)	.690 (.660-.740)	1.05 (.990-1.13)	1.42 (1.26-1.59)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.33, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.02 (.915-1.13)	1.10 (.900-1.20)	1.80 (1.60-1.90)	2.90 (2.50-3.40)	4.30 (3.10-5.40)	884
	01-02	.833 (.745-.931)	.900 (.700-1.00)	1.50 (1.20-1.70)	2.50 (2.00-2.90)	3.30 (2.70-3.80)	683
	03-04	.815 (.710-.935)	.840 (.700-.990)	1.31 (1.18-1.59)	2.19 (1.86-2.50)	2.66 (2.13-3.97)	618
	05-06	.729 (.653-.815)	.770 (.680-.860)	1.32 (1.15-1.59)	2.22 (1.81-2.64)	3.08 (2.50-4.03)	652
	07-08	.607 (.528-.698)	.610 (.530-.690)	.990 (.890-1.21)	1.76 (1.37-2.17)	2.29 (1.82-2.80)	515
	09-10	.546 (.483-.618)	.520 (.460-.580)	.930 (.800-1.09)	1.66 (1.34-1.89)	2.16 (1.80-2.87)	613
Non-Hispanic blacks	99-00	1.11 (1.00-1.23)	1.10 (1.00-1.20)	1.90 (1.50-2.10)	3.00 (2.40-3.50)	4.20 (3.30-5.70)	568
	01-02	.940 (.833-1.06)	.900 (.800-1.00)	1.60 (1.30-1.80)	2.70 (2.10-3.40)	3.70 (2.90-4.80)	667
	03-04	.848 (.729-.986)	.850 (.710-1.00)	1.40 (1.10-1.72)	2.14 (1.78-2.64)	2.82 (2.31-3.89)	723
	05-06	.666 (.604-.734)	.660 (.590-.760)	1.09 (.980-1.18)	1.62 (1.42-1.85)	2.24 (1.65-2.90)	692
	07-08	.618 (.558-.685)	.620 (.560-.690)	1.01 (.920-1.13)	1.56 (1.38-1.90)	2.06 (1.88-2.60)	589
	09-10	.560 (.522-.601)	.550 (.490-.600)	.910 (.830-1.01)	1.53 (1.26-1.71)	1.96 (1.68-2.80)	544
Non-Hispanic whites	99-00	.695 (.625-.773)	.700 (.700-.900)	1.30 (1.10-1.40)	2.00 (1.80-2.40)	2.70 (2.30-3.10)	822
	01-02	.610 (.572-.651)	.700 (.600-.700)	1.10 (1.10-1.20)	1.90 (1.70-2.00)	2.40 (2.30-2.60)	1132
	03-04	.591 (.556-.628)	.590 (.540-.650)	.960 (.910-.990)	1.52 (1.40-1.75)	2.14 (1.78-2.51)	1074
	05-06	.520 (.477-.566)	.540 (.490-.580)	.950 (.820-1.05)	1.53 (1.30-1.76)	2.07 (1.78-2.45)	1041
	07-08	.452 (.422-.485)	.460 (.430-.490)	.780 (.700-.880)	1.23 (1.03-1.50)	1.79 (1.58-1.97)	1095
	09-10	.431 (.406-.458)	.450 (.410-.480)	.750 (.690-.820)	1.11 (1.05-1.24)	1.51 (1.39-1.67)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.33, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.360 (.328-.396)	.370 (.340-.400)	.650 (.580-.720)	1.05 (.980-1.17)	1.49 (1.26-1.75)	2504
	13-14	.277 (.257-.298)	.290 (.270-.300)	.500 (.480-.530)	.840 (.780-.900)	1.17 (1.01-1.41)	2664
Age group							
6-11 years	11-12	.346 (.292-.410)	.370 (.300-.440)	.610 (.540-.770)	1.12 (.830-1.51)	1.54 (1.28-1.85)	399
	13-14	.222 (.192-.258)	.240 (.200-.270)	.390 (.330-.450)	.630 (.560-.810)	.870 (.710-1.09)	402
12-19 years	11-12	.259 (.219-.305)	.260 (.220-.340)	.470 (.380-.530)	.720 (.540-.900)	.970 (.720-1.17)	390
	13-14	.201 (.166-.245)	.220 (.190-.260)	.360 (.290-.440)	.550 (.450-.700)	.750 (.570-.880)	451
20 years and older	11-12	.381 (.348-.416)	.390 (.360-.420)	.680 (.640-.730)	1.11 (1.01-1.21)	1.58 (1.28-1.90)	1715
	13-14	.297 (.280-.315)	.300 (.290-.320)	.540 (.510-.580)	.900 (.820-.980)	1.27 (1.08-1.55)	1811
Gender							
Males	11-12	.414 (.367-.466)	.420 (.380-.460)	.730 (.640-.800)	1.16 (.990-1.47)	1.73 (1.33-2.18)	1262
	13-14	.315 (.295-.337)	.320 (.290-.340)	.580 (.520-.620)	.940 (.840-1.08)	1.48 (1.15-1.92)	1318
Females	11-12	.316 (.282-.355)	.320 (.290-.360)	.580 (.500-.660)	.970 (.830-1.14)	1.31 (1.15-1.41)	1242
	13-14	.245 (.222-.269)	.260 (.240-.280)	.460 (.430-.480)	.720 (.670-.790)	1.00 (.870-1.16)	1346
Race/ethnicity							
Mexican Americans	11-12	.372 (.320-.431)	.380 (.320-.480)	.670 (.550-.780)	1.17 (.820-1.58)	1.67 (1.17-2.18)	317
	13-14	.277 (.240-.319)	.290 (.250-.320)	.480 (.440-.580)	.890 (.690-1.15)	1.21 (.930-1.97)	453
Non-Hispanic blacks	11-12	.431 (.385-.483)	.440 (.370-.520)	.730 (.660-.830)	1.15 (1.00-1.39)	1.64 (1.39-1.87)	669
	13-14	.371 (.320-.429)	.380 (.310-.440)	.620 (.530-.730)	1.09 (.830-1.34)	1.45 (1.24-1.72)	581
Non-Hispanic whites	11-12	.346 (.311-.385)	.360 (.330-.390)	.610 (.540-.700)	1.02 (.920-1.16)	1.38 (1.14-1.85)	820
	13-14	.267 (.245-.290)	.280 (.260-.300)	.500 (.450-.540)	.820 (.730-.920)	1.16 (.950-1.60)	985
All Hispanics	11-12	.372 (.327-.423)	.370 (.320-.420)	.670 (.590-.750)	1.15 (.950-1.31)	1.51 (1.18-2.13)	573
	13-14	.270 (.239-.305)	.280 (.240-.320)	.480 (.440-.540)	.820 (.690-.930)	1.17 (.940-1.47)	701
Asians	11-12	.383 (.341-.429)	.380 (.350-.460)	.690 (.620-.790)	1.15 (.950-1.32)	1.38 (1.21-1.72)	353
	13-14	.257 (.230-.287)	.290 (.240-.350)	.470 (.410-.510)	.710 (.560-.790)	.890 (.750-.980)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.08 and 0.03.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.721 (.700-.742)	.701 (.677-.725)	1.11 (1.05-1.15)	1.70 (1.62-1.85)	2.38 (2.22-2.79)	2465
	01-02	.639 (.603-.677)	.635 (.588-.676)	1.03 (.963-1.08)	1.52 (1.43-1.61)	2.03 (1.89-2.22)	2689
	03-04	.632 (.603-.662)	.622 (.594-.655)	.979 (.920-1.03)	1.49 (1.33-1.64)	1.97 (1.73-2.26)	2558
	05-06	.546 (.520-.573)	.530 (.510-.560)	.860 (.810-.900)	1.27 (1.15-1.37)	1.71 (1.50-1.89)	2576
	07-08	.514 (.482-.548)	.500 (.460-.530)	.800 (.720-.880)	1.30 (1.23-1.42)	1.85 (1.73-1.96)	2627
	09-10	.488 (.466-.512)	.470 (.440-.500)	.760 (.710-.810)	1.16 (1.08-1.28)	1.53 (1.41-1.62)	2848
Age group 6-11 years	99-00	1.17 (.975-1.41)	1.06 (.918-1.22)	1.55 (1.22-1.97)	2.71 (1.67-4.66)	4.66 (1.97-18.0)	340
	01-02	.918 (.841-1.00)	.870 (.800-.933)	1.27 (1.12-1.43)	2.33 (1.59-3.64)	3.64 (1.89-5.56)	368
	03-04	.926 (.812-1.06)	.914 (.781-1.03)	1.45 (1.17-1.72)	2.14 (1.62-3.47)	3.47 (2.19-5.31)	290
	05-06	.628 (.563-.701)	.590 (.530-.680)	.870 (.770-.940)	1.29 (1.03-1.82)	1.96 (1.32-2.42)	355
	07-08	.643 (.543-.763)	.630 (.530-.730)	1.02 (.770-1.24)	1.50 (1.24-2.02)	2.04 (1.70-2.58)	394
	09-10	.604 (.551-.662)	.580 (.520-.650)	.870 (.780-1.00)	1.32 (1.09-1.51)	1.60 (1.38-1.75)	378
12-19 years	99-00	.496 (.460-.535)	.469 (.408-.508)	.709 (.655-.828)	1.11 (.981-1.28)	1.65 (1.15-2.79)	719
	01-02	.404 (.380-.428)	.375 (.342-.400)	.603 (.541-.702)	.990 (.882-1.18)	1.41 (1.07-1.63)	762
	03-04	.432 (.404-.461)	.404 (.383-.436)	.623 (.551-.730)	.938 (.828-1.06)	1.23 (1.09-1.35)	725
	05-06	.363 (.333-.395)	.340 (.310-.360)	.510 (.460-.600)	.800 (.690-.930)	1.07 (.940-1.23)	701
	07-08	.302 (.270-.337)	.290 (.250-.340)	.430 (.400-.490)	.670 (.550-.790)	.900 (.700-1.09)	376
	09-10	.299 (.273-.328)	.290 (.260-.320)	.420 (.370-.490)	.620 (.550-.760)	.880 (.740-1.01)	451
20 years and older	99-00	.720 (.683-.758)	.712 (.667-.739)	1.10 (1.02-1.18)	1.69 (1.53-1.87)	2.31 (2.15-2.62)	1406
	01-02	.658 (.617-.703)	.652 (.608-.702)	1.05 (.992-1.11)	1.51 (1.40-1.61)	2.00 (1.85-2.19)	1559
	03-04	.641 (.606-.679)	.633 (.605-.670)	.988 (.917-1.04)	1.47 (1.28-1.63)	1.94 (1.72-2.12)	1543
	05-06	.573 (.548-.600)	.570 (.530-.600)	.890 (.850-.960)	1.32 (1.22-1.41)	1.77 (1.53-1.94)	1520
	07-08	.545 (.513-.579)	.530 (.490-.570)	.840 (.760-.910)	1.36 (1.27-1.49)	1.92 (1.78-2.08)	1857
	09-10	.514 (.489-.539)	.500 (.460-.530)	.790 (.730-.840)	1.22 (1.10-1.35)	1.57 (1.46-1.71)	2019
Gender Males	99-00	.720 (.679-.763)	.693 (.645-.734)	1.10 (.992-1.22)	1.68 (1.50-2.09)	2.43 (2.15-3.03)	1227
	01-02	.639 (.607-.673)	.638 (.586-.686)	1.01 (.957-1.08)	1.55 (1.41-1.61)	2.06 (1.88-2.43)	1334
	03-04	.615 (.588-.644)	.593 (.561-.639)	.914 (.862-.977)	1.44 (1.25-1.53)	2.00 (1.71-2.28)	1281
	05-06	.551 (.522-.582)	.530 (.510-.580)	.830 (.770-.910)	1.25 (1.13-1.39)	1.77 (1.42-2.20)	1271
	07-08	.501 (.471-.534)	.490 (.450-.530)	.750 (.700-.810)	1.29 (1.15-1.49)	1.88 (1.71-1.98)	1327
	09-10	.481 (.458-.505)	.450 (.430-.490)	.740 (.690-.800)	1.15 (1.04-1.29)	1.56 (1.37-1.70)	1398
Females	99-00	.722 (.681-.765)	.707 (.667-.746)	1.11 (1.05-1.18)	1.74 (1.50-2.02)	2.38 (2.03-2.88)	1238
	01-02	.639 (.594-.688)	.625 (.571-.682)	1.03 (.946-1.11)	1.50 (1.39-1.61)	1.98 (1.85-2.15)	1355
	03-04	.648 (.601-.698)	.649 (.604-.718)	1.03 (.938-1.10)	1.56 (1.34-1.73)	1.96 (1.72-2.20)	1277
	05-06	.541 (.507-.577)	.530 (.500-.580)	.880 (.820-.940)	1.28 (1.12-1.41)	1.64 (1.38-1.91)	1305
	07-08	.527 (.489-.568)	.500 (.470-.550)	.840 (.740-.960)	1.34 (1.23-1.47)	1.79 (1.56-2.08)	1300
	09-10	.495 (.466-.526)	.480 (.450-.520)	.780 (.710-.830)	1.20 (1.08-1.32)	1.52 (1.39-1.62)	1450

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.940 (.876-1.01)	.887 (.796-1.03)	1.43 (1.37-1.58)	2.38 (2.08-2.77)	3.46 (2.78-4.18)	884
	01-02	.810 (.731-.898)	.774 (.702-.893)	1.29 (1.09-1.44)	2.05 (1.75-2.50)	2.78 (2.56-3.33)	682
	03-04	.755 (.681-.838)	.708 (.612-.851)	1.18 (1.09-1.31)	1.86 (1.50-2.26)	2.31 (1.98-2.92)	618
	05-06	.686 (.638-.737)	.680 (.620-.740)	1.00 (.930-1.13)	1.63 (1.39-1.88)	2.20 (1.77-3.20)	652
	07-08	.607 (.514-.717)	.590 (.500-.690)	.970 (.770-1.19)	1.56 (1.25-2.07)	2.20 (1.78-2.46)	515
	09-10	.573 (.526-.623)	.540 (.470-.610)	.950 (.780-1.06)	1.59 (1.41-1.82)	2.02 (1.82-2.40)	613
Non-Hispanic blacks	99-00	.722 (.659-.790)	.671 (.583-.753)	1.11 (.988-1.20)	2.00 (1.56-2.51)	2.83 (2.20-3.88)	568
	01-02	.644 (.559-.742)	.608 (.510-.710)	.962 (.853-1.20)	1.79 (1.36-2.33)	2.75 (2.04-3.98)	667
	03-04	.609 (.529-.701)	.569 (.492-.698)	.900 (.793-1.03)	1.48 (1.11-1.97)	2.24 (1.65-2.88)	723
	05-06	.483 (.459-.508)	.470 (.440-.490)	.740 (.670-.820)	1.18 (1.06-1.29)	1.60 (1.37-1.85)	692
	07-08	.452 (.414-.492)	.440 (.400-.490)	.710 (.610-.780)	1.13 (.930-1.33)	1.57 (1.21-1.88)	589
	09-10	.444 (.417-.473)	.420 (.390-.470)	.680 (.600-.740)	1.07 (.940-1.18)	1.51 (1.18-1.65)	544
Non-Hispanic whites	99-00	.696 (.668-.725)	.677 (.645-.718)	1.07 (.997-1.14)	1.66 (1.50-1.83)	2.31 (1.94-2.82)	822
	01-02	.615 (.579-.654)	.621 (.571-.667)	1.00 (.933-1.07)	1.46 (1.37-1.52)	1.88 (1.62-2.03)	1132
	03-04	.623 (.592-.655)	.618 (.587-.657)	.971 (.914-1.03)	1.44 (1.25-1.61)	1.85 (1.64-2.10)	1074
	05-06	.541 (.500-.585)	.530 (.490-.580)	.850 (.790-.920)	1.24 (1.12-1.37)	1.62 (1.37-1.94)	1041
	07-08	.506 (.466-.550)	.490 (.460-.540)	.790 (.700-.880)	1.27 (1.15-1.42)	1.81 (1.59-1.96)	1095
	09-10	.482 (.448-.518)	.460 (.430-.500)	.740 (.690-.820)	1.15 (1.01-1.30)	1.46 (1.32-1.59)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Urinary Lead (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.409 (.380-.440)	.396 (.374-.418)	.634 (.583-.675)	1.00 (.878-1.16)	1.51 (1.24-1.71)	2502
	13-14	.320 (.302-.339)	.313 (.294-.331)	.519 (.491-.554)	.823 (.756-.907)	1.16 (1.00-1.30)	2663
Age group							
6-11 years	11-12	.494 (.430-.567)	.459 (.414-.529)	.708 (.559-.930)	1.18 (.884-1.56)	1.56 (1.12-2.22)	398
	13-14	.331 (.297-.370)	.313 (.273-.370)	.500 (.452-.571)	.833 (.667-.938)	1.07 (.905-1.34)	402
12-19 years	11-12	.247 (.218-.281)	.224 (.206-.264)	.385 (.317-.429)	.541 (.440-.667)	.667 (.513-1.03)	390
	13-14	.182 (.160-.208)	.169 (.142-.194)	.276 (.225-.330)	.457 (.339-.640)	.640 (.438-.908)	451
20 years and older	11-12	.433 (.402-.466)	.414 (.389-.437)	.660 (.619-.712)	1.05 (.929-1.22)	1.61 (1.28-1.87)	1714
	13-14	.346 (.331-.363)	.337 (.321-.353)	.554 (.505-.592)	.861 (.789-.935)	1.23 (1.04-1.46)	1810
Gender							
Males	11-12	.388 (.346-.436)	.377 (.338-.418)	.590 (.524-.658)	.987 (.833-1.17)	1.51 (1.16-1.89)	1261
	13-14	.315 (.293-.339)	.303 (.278-.327)	.486 (.440-.541)	.758 (.692-.913)	1.16 (.956-1.58)	1317
Females	11-12	.430 (.405-.457)	.416 (.385-.444)	.667 (.626-.709)	1.03 (.905-1.21)	1.49 (1.21-1.71)	1241
	13-14	.325 (.303-.348)	.325 (.308-.336)	.545 (.500-.580)	.864 (.785-.929)	1.18 (.970-1.33)	1346
Race/ethnicity							
Mexican Americans	11-12	.418 (.370-.471)	.409 (.356-.462)	.667 (.598-.716)	1.05 (.822-1.25)	1.32 (1.16-1.54)	317
	13-14	.316 (.283-.352)	.319 (.278-.336)	.500 (.450-.589)	.845 (.720-1.04)	1.16 (.908-1.36)	453
Non-Hispanic blacks	11-12	.335 (.301-.374)	.316 (.269-.357)	.529 (.464-.598)	.906 (.770-1.07)	1.34 (1.06-1.55)	669
	13-14	.282 (.251-.317)	.275 (.237-.316)	.455 (.398-.515)	.750 (.611-.920)	.977 (.836-1.21)	581
Non-Hispanic whites	11-12	.419 (.378-.465)	.404 (.369-.439)	.642 (.559-.722)	.966 (.826-1.22)	1.62 (1.16-2.00)	818
	13-14	.329 (.306-.353)	.317 (.293-.344)	.541 (.486-.589)	.860 (.750-.933)	1.23 (.983-1.60)	984
All Hispanics	11-12	.416 (.377-.460)	.401 (.366-.442)	.641 (.561-.694)	1.02 (.851-1.24)	1.40 (1.16-1.65)	573
	13-14	.301 (.276-.328)	.307 (.269-.327)	.473 (.438-.508)	.795 (.667-.882)	1.07 (.882-1.24)	701
Asians	11-12	.511 (.453-.577)	.512 (.440-.588)	.829 (.706-.980)	1.28 (1.05-1.57)	1.61 (1.40-2.22)	353
	13-14	.403 (.360-.451)	.417 (.342-.503)	.619 (.549-.708)	.929 (.767-1.03)	1.12 (.955-1.33)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Lead_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Lead_FactSheet.html

Blood Manganese (2011 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	9.35 (9.19-9.51)	9.22 (9.04-9.40)	11.5 (11.3-11.7)	14.4 (14.2-14.6)	16.7 (16.2-17.3)	7920
	13-14	9.52 (9.35-9.70)	9.41 (9.23-9.62)	11.8 (11.5-12.1)	14.6 (14.2-15.0)	16.7 (15.9-17.3)	5215
	15-16	9.59 (9.36-9.82)	9.52 (9.23-9.73)	12.0 (11.6-12.3)	14.8 (14.5-15.1)	16.4 (15.9-17.3)	4987
Age group							
1-5 years	11-12	10.7 (10.2-11.2)	10.6 (10.1-11.2)	13.2 (12.6-13.5)	15.3 (14.5-16.8)	18.2 (15.3-19.7)	713
	13-14	10.9 (10.6-11.1)	10.7 (10.5-11.0)	13.2 (12.6-13.6)	16.1 (14.8-16.9)	18.3 (16.9-19.0)	818
	15-16	10.8 (10.3-11.3)	10.8 (10.4-11.3)	12.9 (12.4-13.7)	15.6 (14.6-17.2)	18.3 (16.5-19.3)	790
6-11 years	11-12	10.3 (9.98-10.6)	10.2 (9.83-10.4)	12.6 (12.2-12.8)	14.9 (14.2-15.5)	16.5 (16.0-17.6)	1048
	13-14	10.2 (9.87-10.6)	10.2 (9.95-10.6)	12.4 (12.0-13.0)	14.8 (14.2-15.6)	16.4 (15.5-17.1)	1075
	15-16	10.4 (10.1-10.7)	10.4 (10.1-10.6)	12.6 (12.3-13.1)	15.2 (14.3-16.2)	17.1 (15.6-18.3)	1023
12-19 years	11-12	10.1 (9.67-10.5)	9.90 (9.42-10.8)	12.5 (11.7-13.2)	14.8 (14.1-15.4)	16.6 (15.3-17.9)	1129
	13-14	10.4 (10.0-10.8)	10.1 (9.55-10.6)	13.4 (12.5-13.9)	16.1 (15.0-17.4)	17.9 (16.1-20.3)	627
	15-16	10.5 (10.1-10.9)	10.4 (9.81-10.9)	13.1 (12.1-13.9)	15.6 (14.9-16.2)	17.3 (16.4-18.3)	565
20 years and older	11-12	9.09 (8.94-9.24)	8.96 (8.83-9.11)	11.1 (10.9-11.3)	14.1 (13.7-14.5)	16.7 (16.1-17.3)	5030
	13-14	9.27 (9.11-9.43)	9.22 (9.01-9.39)	11.4 (11.2-11.7)	14.1 (13.9-14.6)	16.2 (15.5-17.0)	2695
	15-16	9.34 (9.11-9.58)	9.20 (8.92-9.51)	11.6 (11.4-11.8)	14.7 (14.1-15.1)	16.1 (15.6-16.9)	2609
Gender							
Males	11-12	8.74 (8.58-8.91)	8.78 (8.65-8.91)	10.6 (10.3-10.9)	13.0 (12.7-13.4)	14.9 (14.4-15.3)	3968
	13-14	8.92 (8.76-9.09)	8.96 (8.70-9.19)	10.9 (10.6-11.1)	13.3 (12.9-13.6)	14.7 (14.2-15.2)	2587
	15-16	8.99 (8.74-9.25)	8.82 (8.59-9.17)	11.2 (10.8-11.6)	13.4 (13.1-14.0)	15.1 (14.5-15.5)	2488
Females	11-12	9.96 (9.75-10.2)	9.72 (9.52-10.0)	12.4 (12.0-12.9)	15.5 (15.2-15.9)	17.8 (17.4-18.4)	3952
	13-14	10.1 (9.86-10.4)	9.93 (9.57-10.4)	12.6 (12.3-13.0)	15.7 (15.1-16.4)	17.9 (17.0-19.2)	2628
	15-16	10.2 (9.95-10.4)	10.1 (9.83-10.3)	12.7 (12.3-13.2)	15.7 (15.2-16.2)	17.9 (17.0-18.4)	2499
Race/ethnicity							
Mexican Americans	11-12	10.7 (10.4-11.0)	10.7 (10.3-11.0)	13.2 (12.9-13.5)	16.4 (15.2-17.1)	19.1 (17.7-20.3)	1077
	13-14	10.9 (10.6-11.3)	11.0 (10.6-11.3)	13.6 (13.1-14.0)	16.4 (15.2-17.4)	18.0 (17.1-19.9)	969
	15-16	11.1 (10.8-11.4)	11.1 (10.7-11.4)	13.6 (13.2-14.1)	16.7 (15.9-17.2)	18.6 (17.9-19.8)	994
Non-Hispanic blacks	11-12	8.34 (8.19-8.49)	8.18 (8.04-8.33)	10.1 (9.81-10.4)	12.7 (12.0-13.3)	15.5 (14.5-16.5)	2195
	13-14	8.23 (8.04-8.43)	8.17 (7.87-8.47)	10.0 (9.72-10.4)	12.5 (12.1-12.8)	14.0 (13.4-15.1)	1119
	15-16	8.46 (8.18-8.75)	8.53 (8.17-8.81)	10.2 (9.84-10.6)	12.5 (12.0-13.4)	14.5 (13.2-16.1)	1070
Non-Hispanic whites	11-12	9.08 (8.91-9.26)	9.01 (8.79-9.21)	11.1 (10.9-11.3)	13.7 (13.3-14.2)	15.9 (15.2-16.4)	2493
	13-14	9.27 (9.07-9.48)	9.18 (8.96-9.38)	11.2 (10.9-11.5)	14.0 (13.0-14.5)	15.7 (14.7-17.0)	1848
	15-16	9.37 (9.08-9.67)	9.26 (8.91-9.65)	11.6 (11.2-11.9)	14.5 (13.4-14.9)	15.7 (15.1-16.4)	1510
All Hispanics	11-12	10.4 (10.1-10.8)	10.3 (9.95-10.7)	12.8 (12.3-13.3)	15.7 (14.9-16.7)	18.3 (17.3-19.2)	1931
	13-14	10.6 (10.3-10.9)	10.6 (10.4-10.8)	13.2 (12.9-13.5)	16.1 (15.2-16.7)	17.8 (17.1-18.7)	1481
	15-16	10.8 (10.5-11.1)	10.7 (10.4-11.1)	13.4 (12.9-13.8)	16.3 (15.6-16.9)	18.1 (17.5-18.7)	1664
Asians	11-12	11.9 (11.5-12.4)	11.8 (11.4-12.3)	14.7 (14.1-15.3)	17.6 (16.8-18.4)	19.8 (19.0-21.1)	1005
	13-14	12.4 (12.0-12.8)	12.6 (12.0-13.0)	15.0 (14.7-15.5)	17.5 (16.8-18.4)	19.4 (18.4-20.4)	510
	15-16	12.1 (11.5-12.8)	12.0 (11.3-13.0)	14.9 (14.1-15.6)	17.9 (16.3-19.2)	19.8 (18.3-21.3)	479

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, and 15-16 are 1.06, 0.99, and 0.99 respectively.
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Urinary Manganese (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.123 (.112-.136)	.120 (.100-.140)	.200 (.180-.230)	.300 (.270-.310)	.370 (.320-.450)	2504
	13-14	*	< LOD	.130 (<LOD-.150)	.220 (.200-.230)	.300 (.260-.330)	2664
Age group							
6-11 years	11-12	.143 (.126-.162)	.150 (.120-.180)	.250 (.210-.300)	.340 (.310-.450)	.460 (.350-.540)	399
	13-14	*	< LOD	.150 (<LOD-.190)	.220 (.180-.320)	.310 (.220-.460)	402
12-19 years	11-12	.128 (.107-.153)	.120 (.090-.160)	.220 (.160-.280)	.310 (.250-.420)	.430 (.310-.570)	390
	13-14	*	< LOD	.140 (.130-.170)	.250 (.220-.330)	.380 (.300-.520)	451
20 years and older	11-12	.121 (.109-.134)	.120 (.100-.140)	.190 (.180-.220)	.280 (.250-.300)	.350 (.300-.440)	1715
	13-14	*	< LOD	.130 (<LOD-.140)	.210 (.190-.220)	.280 (.240-.320)	1811
Gender							
Males	11-12	.121 (.108-.136)	.120 (.100-.140)	.190 (.170-.220)	.280 (.250-.310)	.350 (.300-.390)	1262
	13-14	*	< LOD	< LOD	.190 (.160-.210)	.240 (.210-.260)	1318
Females	11-12	.126 (.114-.138)	.120 (.100-.140)	.210 (.190-.240)	.300 (.270-.350)	.410 (.340-.520)	1242
	13-14	*	< LOD	.150 (.130-.160)	.240 (.210-.290)	.350 (.300-.400)	1346
Race/ethnicity							
Mexican Americans	11-12	.129 (.116-.144)	.130 (.110-.150)	.220 (.190-.250)	.300 (.260-.360)	.360 (.300-.440)	317
	13-14	*	< LOD	.150 (<LOD-.180)	.220 (.180-.250)	.250 (.220-.410)	453
Non-Hispanic blacks	11-12	.132 (.116-.150)	.140 (.100-.170)	.220 (.200-.240)	.310 (.280-.360)	.380 (.320-.480)	669
	13-14	*	< LOD	.150 (.140-.180)	.250 (.200-.310)	.350 (.290-.410)	581
Non-Hispanic whites	11-12	.123 (.109-.138)	.120 (.100-.140)	.200 (.170-.230)	.300 (.250-.340)	.390 (.300-.510)	820
	13-14	*	< LOD	.130 (<LOD-.140)	.210 (.180-.240)	.290 (.240-.340)	985
All Hispanics	11-12	.120 (.110-.132)	.120 (.100-.150)	.200 (.180-.230)	.290 (.260-.300)	.330 (.300-.380)	573
	13-14	*	< LOD	.140 (<LOD-.160)	.210 (.190-.240)	.250 (.220-.380)	701
Asians	11-12	.125 (.108-.143)	.120 (.090-.160)	.220 (.180-.250)	.300 (.270-.360)	.410 (.300-.490)	353
	13-14	*	< LOD	< LOD	.190 (.150-.250)	.260 (.200-.300)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.08 and 0.13.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Manganese (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.140 (.126-.155)	.139 (.119-.154)	.233 (.206-.273)	.389 (.354-.444)	.548 (.500-.625)	2502
	13-14	*	< LOD	.219 (<LOD-.240)	.368 (.329-.418)	.541 (.438-.657)	2663
Age group							
6-11 years	11-12	.201 (.175-.231)	.197 (.173-.238)	.308 (.285-.358)	.486 (.388-.600)	.633 (.511-.750)	398
	13-14	*	< LOD	.297 (<LOD-.400)	.495 (.383-.657)	.708 (.532-.844)	402
12-19 years	11-12	.122 (.105-.143)	.125 (.099-.150)	.200 (.174-.213)	.297 (.220-.429)	.490 (.271-.814)	390
	13-14	*	< LOD	.180 (.148-.204)	.279 (.228-.354)	.396 (.288-.460)	451
20 years and older	11-12	.137 (.124-.151)	.133 (.117-.148)	.232 (.197-.276)	.389 (.347-.455)	.545 (.487-.600)	1714
	13-14	*	< LOD	.217 (<LOD-.237)	.355 (.329-.400)	.541 (.434-.657)	1810
Gender							
Males	11-12	.113 (.101-.127)	.111 (.098-.127)	.182 (.165-.197)	.318 (.248-.357)	.388 (.349-.487)	1261
	13-14	*	< LOD	< LOD	.279 (.263-.297)	.383 (.317-.460)	1317
Females	11-12	.171 (.153-.191)	.161 (.145-.194)	.286 (.250-.324)	.500 (.406-.571)	.635 (.571-.980)	1241
	13-14	*	< LOD	.271 (.237-.307)	.438 (.368-.511)	.613 (.511-.836)	1346
Race/ethnicity							
Mexican Americans	11-12	.145 (.125-.169)	.139 (.119-.172)	.237 (.196-.277)	.359 (.300-.419)	.439 (.375-.600)	317
	13-14	*	< LOD	.212 (<LOD-.233)	.341 (.288-.368)	.405 (.341-.651)	453
Non-Hispanic blacks	11-12	.102 (.090-.117)	.102 (.085-.117)	.172 (.149-.200)	.272 (.231-.351)	.406 (.351-.547)	669
	13-14	*	< LOD	.146 (.133-.155)	.242 (.219-.271)	.333 (.283-.540)	581
Non-Hispanic whites	11-12	.148 (.132-.166)	.145 (.127-.162)	.248 (.212-.300)	.410 (.375-.490)	.550 (.512-.633)	818
	13-14	*	< LOD	.237 (<LOD-.271)	.402 (.329-.483)	.541 (.484-.700)	984
All Hispanics	11-12	.135 (.121-.150)	.129 (.114-.146)	.221 (.190-.250)	.356 (.317-.380)	.469 (.386-.574)	573
	13-14	*	< LOD	.200 (<LOD-.219)	.329 (.271-.368)	.400 (.345-.541)	701
Asians	11-12	.167 (.138-.201)	.164 (.133-.198)	.271 (.219-.360)	.462 (.406-.577)	.641 (.500-.980)	353
	13-14	*	< LOD	< LOD	.383 (.341-.484)	.514 (.418-.769)	292

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Total Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	.797 (.703-.903)	.800 (.700-.900)	1.70 (1.50-1.90)	3.30 (2.90-3.90)	4.90 (4.30-5.50)	8373
	05-06	.863 (.787-.946)	.830 (.760-.920)	1.66 (1.48-1.93)	3.20 (2.87-3.54)	4.64 (4.17-5.25)	8407
	07-08	.769 (.689-.859)	.740 (.660-.830)	1.48 (1.29-1.69)	2.95 (2.46-3.59)	4.64 (3.74-5.79)	8266
	09-10	.863 (.792-.941)	.790 (.730-.880)	1.68 (1.49-1.91)	3.43 (3.07-3.84)	5.13 (4.57-5.67)	8793
Age group							
1-5 years	03-04	.326 (.285-.372)	.300 (.300-.300)	.500 (.500-.700)	1.00 (.800-1.60)	1.80 (1.30-2.50)	911
	05-06	*	< LOD	.500 (.470-.550)	.940 (.820-1.24)	1.43 (1.25-1.59)	968
	07-08	*	< LOD	.440 (.380-.540)	.830 (.620-1.12)	1.32 (.960-2.40)	817
	09-10	*	< LOD	.490 (.430-.590)	.890 (.740-1.08)	1.30 (1.08-1.52)	836
6-11 years	03-04	.419 (.363-.484)	.400 (.400-.500)	.700 (.700-.900)	1.30 (1.00-1.60)	1.90 (1.40-3.50)	856
	05-06	*	.410 (.330-.460)	.740 (.630-1.00)	1.43 (1.21-1.87)	2.34 (1.53-3.42)	934
	07-08	*	.380 (.340-.440)	.700 (.600-.790)	1.21 (.970-1.36)	1.56 (1.34-1.80)	1011
	09-10	*	.360 (<LOD-.400)	.670 (.590-.770)	1.22 (1.05-1.45)	1.88 (1.43-2.61)	1009
12-19 years	03-04	.490 (.418-.574)	.500 (.400-.600)	1.00 (.800-1.20)	1.80 (1.40-2.30)	2.60 (2.10-3.30)	2081
	05-06	.513 (.461-.570)	.460 (.390-.530)	.850 (.740-1.04)	1.66 (1.31-1.98)	2.41 (2.12-2.90)	1996
	07-08	.469 (.426-.516)	.440 (.390-.490)	.800 (.670-.970)	1.55 (1.30-1.72)	2.05 (1.77-2.34)	1074
	09-10	.534 (.473-.602)	.450 (.370-.540)	.910 (.770-1.11)	2.04 (1.53-2.55)	3.01 (2.53-3.63)	1183
20 years and older	03-04	.979 (.860-1.12)	1.00 (.800-1.10)	2.00 (1.70-2.30)	3.80 (3.20-4.40)	5.40 (4.60-6.70)	4525
	05-06	1.06 (.967-1.15)	1.03 (.930-1.15)	1.98 (1.73-2.22)	3.64 (3.33-4.01)	5.31 (4.82-5.67)	4509
	07-08	.944 (.833-1.07)	.890 (.780-1.03)	1.73 (1.47-2.09)	3.41 (2.82-4.17)	5.32 (4.32-6.72)	5364
	09-10	1.04 (.956-1.14)	.970 (.870-1.08)	2.00 (1.80-2.20)	3.96 (3.55-4.27)	5.75 (5.14-6.50)	5765
Gender							
Males	03-04	.814 (.714-.927)	.800 (.700-.900)	1.80 (1.50-2.00)	3.70 (3.20-4.30)	5.40 (4.60-6.50)	4132
	05-06	.864 (.783-.954)	.810 (.720-.940)	1.69 (1.48-2.01)	3.30 (2.86-3.73)	4.83 (4.08-5.45)	4092
	07-08	.809 (.709-.923)	.760 (.670-.850)	1.56 (1.31-1.81)	3.21 (2.72-4.06)	5.16 (4.12-6.97)	4147
	09-10	.883 (.810-.962)	.790 (.730-.870)	1.75 (1.54-2.02)	3.84 (3.35-4.26)	5.65 (5.13-6.34)	4366
Females	03-04	.781 (.689-.886)	.800 (.700-.900)	1.60 (1.40-1.80)	3.00 (2.50-3.50)	4.40 (3.60-5.30)	4241
	05-06	.864 (.791-.943)	.850 (.770-.920)	1.63 (1.44-1.89)	3.09 (2.75-3.46)	4.51 (4.01-5.28)	4315
	07-08	.748 (.677-.827)	.720 (.660-.810)	1.42 (1.24-1.60)	2.70 (2.27-3.27)	3.93 (3.17-5.16)	4119
	09-10	.845 (.772-.924)	.800 (.720-.880)	1.61 (1.43-1.81)	3.13 (2.76-3.48)	4.43 (4.04-5.11)	4427
Race/ethnicity							
Mexican Americans	03-04	.563 (.472-.672)	.600 (.500-.700)	1.00 (.800-1.30)	1.90 (1.60-2.40)	3.00 (2.20-3.80)	2085
	05-06	.597 (.524-.679)	.580 (.490-.670)	1.04 (.870-1.24)	1.70 (1.40-2.12)	2.58 (1.96-3.31)	2236
	07-08	.594 (.536-.658)	.580 (.520-.670)	1.03 (.900-1.17)	1.73 (1.49-2.04)	2.48 (2.10-2.91)	1712
	09-10	.613 (.571-.659)	.580 (.540-.630)	1.01 (.890-1.15)	1.63 (1.47-1.90)	2.45 (2.03-2.93)	1966
Non-Hispanic blacks	03-04	.877 (.753-1.02)	.900 (.800-1.00)	1.60 (1.40-1.80)	3.00 (2.30-4.00)	4.40 (3.30-6.00)	2293
	05-06	.823 (.697-.972)	.800 (.670-.940)	1.50 (1.21-1.92)	2.72 (2.14-3.59)	4.09 (3.22-5.16)	2193
	07-08	.766 (.711-.825)	.780 (.710-.830)	1.32 (1.23-1.42)	2.25 (1.99-2.58)	3.42 (2.74-3.90)	1746
	09-10	.928 (.805-1.07)	.900 (.800-1.02)	1.67 (1.38-1.96)	2.93 (2.20-4.21)	4.56 (3.34-6.69)	1593
Non-Hispanic whites	03-04	.776 (.655-.919)	.800 (.700-.900)	1.70 (1.40-2.00)	3.20 (2.60-3.90)	4.70 (4.00-5.60)	3478
	05-06	.891 (.801-.992)	.870 (.770-1.00)	1.74 (1.50-2.10)	3.37 (2.88-3.76)	4.76 (4.18-5.37)	3310
	07-08	.743 (.651-.847)	.720 (.620-.820)	1.43 (1.18-1.70)	2.79 (2.33-3.41)	4.18 (3.57-4.83)	3461
	09-10	.856 (.766-.957)	.790 (.690-.920)	1.70 (1.46-1.98)	3.43 (2.94-3.94)	4.92 (4.30-5.65)	3760

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.2, 0.33, 0.33, and 0.33 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Total Mercury (2011 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.703 (.617-.801)	.640 (.580-.730)	1.38 (1.14-1.72)	2.87 (2.39-3.62)	4.40 (3.50-5.71)	7920
	13-14	.683 (.621-.751)	.620 (.540-.690)	1.29 (1.14-1.46)	2.65 (2.32-3.08)	4.36 (3.65-4.97)	5215
	15-16	.678 (.619-.743)	.600 (.540-.690)	1.26 (1.07-1.47)	2.55 (2.17-3.10)	4.25 (3.44-4.94)	4988
Age group							
1-5 years	11-12	.262 (.237-.291)	.250 (.220-.270)	.390 (.340-.450)	.680 (.540-.880)	.990 (.790-1.21)	713
	13-14	*	< LOD	.410 (.370-.450)	.810 (.710-.990)	1.21 (1.05-1.48)	818
	15-16	*	< LOD	.380 (.340-.430)	.690 (.540-.830)	1.06 (.840-1.36)	790
6-11 years	11-12	.330 (.287-.379)	.320 (.280-.360)	.530 (.480-.600)	.930 (.780-1.20)	1.40 (1.02-2.17)	1048
	13-14	*	.300 (<LOD-.360)	.570 (.470-.680)	1.12 (.980-1.36)	1.62 (1.38-2.19)	1075
	15-16	*	.310 (.290-.340)	.480 (.430-.570)	.920 (.750-1.13)	1.33 (1.01-2.28)	1023
12-19 years	11-12	.411 (.355-.476)	.370 (.320-.450)	.680 (.590-.800)	1.32 (1.08-1.75)	2.25 (1.46-2.87)	1129
	13-14	.412 (.367-.463)	.350 (.310-.420)	.630 (.530-.750)	1.20 (.900-1.67)	1.87 (1.30-2.38)	627
	15-16	.395 (.356-.439)	.340 (.300-.370)	.590 (.470-.750)	1.00 (.850-1.35)	1.89 (1.02-3.34)	565
20 years and older	11-12	.863 (.753-.990)	.790 (.690-.940)	1.68 (1.36-2.12)	3.35 (2.71-4.31)	5.02 (3.94-6.96)	5030
	13-14	.814 (.736-.900)	.740 (.650-.850)	1.54 (1.36-1.71)	3.08 (2.73-3.56)	4.88 (4.36-5.21)	2695
	15-16	.810 (.740-.886)	.740 (.660-.830)	1.47 (1.28-1.75)	2.86 (2.50-3.44)	4.66 (3.91-5.96)	2610
Gender							
Males	11-12	.712 (.623-.815)	.650 (.570-.730)	1.40 (1.17-1.72)	3.00 (2.44-3.91)	4.94 (3.50-6.79)	3968
	13-14	.688 (.617-.767)	.620 (.530-.720)	1.30 (1.12-1.54)	2.76 (2.36-3.34)	4.52 (3.65-5.23)	2587
	15-16	.679 (.621-.743)	.610 (.530-.700)	1.29 (1.06-1.60)	2.45 (2.06-3.31)	4.67 (3.77-5.39)	2488
Females	11-12	.694 (.609-.791)	.640 (.580-.740)	1.36 (1.09-1.75)	2.81 (2.28-3.50)	4.03 (3.29-5.08)	3952
	13-14	.678 (.617-.745)	.610 (.530-.700)	1.27 (1.14-1.42)	2.56 (2.17-3.08)	4.15 (3.37-4.93)	2628
	15-16	.677 (.608-.754)	.600 (.530-.700)	1.23 (1.02-1.42)	2.57 (2.20-3.10)	3.95 (3.10-4.55)	2500
Race/ethnicity							
Mexican Americans	11-12	.483 (.424-.550)	.480 (.400-.560)	.810 (.720-.900)	1.44 (1.16-1.63)	1.90 (1.57-2.19)	1077
	13-14	.487 (.433-.547)	.430 (.390-.510)	.760 (.690-.870)	1.41 (1.14-1.69)	1.98 (1.70-2.38)	969
	15-16	.540 (.522-.559)	.530 (.470-.570)	.840 (.790-.920)	1.41 (1.19-1.60)	1.81 (1.54-2.33)	994
Non-Hispanic blacks	11-12	.679 (.542-.852)	.630 (.500-.790)	1.24 (.880-1.72)	2.45 (1.84-3.14)	3.80 (2.70-5.37)	2195
	13-14	.699 (.614-.796)	.650 (.570-.750)	1.20 (1.08-1.40)	2.30 (1.65-2.96)	3.34 (2.35-5.93)	1119
	15-16	.698 (.587-.829)	.630 (.510-.760)	1.21 (1.04-1.47)	2.49 (2.01-3.51)	4.51 (2.74-5.87)	1070
Non-Hispanic whites	11-12	.688 (.582-.813)	.630 (.550-.750)	1.38 (1.09-1.82)	2.83 (2.18-3.82)	4.25 (3.02-6.24)	2493
	13-14	.672 (.598-.755)	.620 (.520-.720)	1.30 (1.12-1.51)	2.61 (2.18-3.08)	4.15 (3.35-4.98)	1848
	15-16	.638 (.563-.723)	.570 (.500-.670)	1.22 (.940-1.47)	2.29 (1.82-2.72)	3.95 (2.56-4.55)	1511
All Hispanics	11-12	.612 (.527-.710)	.590 (.490-.700)	1.08 (.890-1.33)	1.96 (1.60-2.68)	3.03 (2.37-3.86)	1931
	13-14	.551 (.486-.624)	.490 (.420-.580)	.910 (.820-1.10)	1.76 (1.44-2.12)	2.59 (2.06-3.14)	1481
	15-16	.607 (.546-.675)	.570 (.520-.640)	1.00 (.870-1.17)	1.75 (1.38-2.33)	2.60 (1.85-3.25)	1664
Asians	11-12	1.86 (1.58-2.19)	2.30 (1.84-2.64)	4.32 (3.71-5.21)	7.71 (6.38-8.79)	10.3 (8.85-12.0)	1005
	13-14	1.72 (1.46-2.03)	1.77 (1.42-2.26)	3.92 (3.35-4.55)	7.78 (6.39-9.16)	9.99 (9.16-13.7)	510
	15-16	1.73 (1.41-2.12)	2.03 (1.40-2.70)	4.21 (3.31-5.50)	7.66 (6.17-9.91)	11.3 (9.12-13.8)	479

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, and 15-16 are 0.16, 0.28, and 0.28 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Inorganic Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.700)	8147
	05-06	*	< LOD	< LOD	.540 (.500-.580)	.660 (.620-.710)	8371
	07-08	*	< LOD	.350 (<LOD-.370)	.520 (.500-.540)	.650 (.620-.690)	8162
	09-10	*	< LOD	< LOD	.390 (.360-.430)	.510 (.480-.570)	8733
Age group							
1-5 years	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.600)	792
	05-06	*	< LOD	< LOD	.430 (<LOD-.470)	.510 (.430-.670)	948
	07-08	*	< LOD	< LOD	.350 (<LOD-.450)	.500 (.410-.550)	726
	09-10	*	< LOD	< LOD	< LOD	.360 (<LOD-.460)	789
6-11 years	03-04	*	< LOD	< LOD	< LOD	.600 (.500-.600)	842
	05-06	*	< LOD	< LOD	.450 (<LOD-.520)	.560 (.470-.640)	932
	07-08	*	< LOD	< LOD	.380 (.350-.410)	.470 (.420-.520)	1010
	09-10	*	< LOD	< LOD	< LOD	.380 (.350-.440)	1006
12-19 years	03-04	*	< LOD	< LOD	.500 (<LOD-.500)	.600 (.500-.600)	2060
	05-06	*	< LOD	< LOD	.430 (.410-.460)	.540 (.480-.590)	1984
	07-08	*	< LOD	< LOD	.370 (<LOD-.400)	.480 (.410-.530)	1069
	09-10	*	< LOD	< LOD	< LOD	.420 (.350-.500)	1184
20 years and older	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.800)	4453
	05-06	*	< LOD	< LOD	.570 (.530-.610)	.690 (.650-.750)	4507
	07-08	*	< LOD	.380 (.360-.390)	.550 (.530-.570)	.700 (.660-.730)	5357
	09-10	*	< LOD	< LOD	.420 (.390-.450)	.540 (.490-.600)	5754
Gender							
Males	03-04	*	< LOD	< LOD	.500 (.500-.600)	.600 (.600-.700)	4015
	05-06	*	< LOD	< LOD	.480 (.450-.520)	.600 (.550-.640)	4076
	07-08	*	< LOD	< LOD	.500 (.470-.520)	.600 (.570-.650)	4093
	09-10	*	< LOD	< LOD	.370 (<LOD-.420)	.500 (.440-.560)	4336
Females	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.700-.800)	4132
	05-06	*	< LOD	< LOD	.580 (.550-.640)	.700 (.670-.780)	4295
	07-08	*	< LOD	.380 (.360-.390)	.550 (.520-.570)	.700 (.670-.740)	4069
	09-10	*	< LOD	< LOD	.410 (.380-.440)	.530 (.490-.600)	4397

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.42, 0.4, 0.35, and 0.35 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Inorganic Mercury (2003 – 2010)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	.500 (.500-.600)	.700 (.600-.800)	2007
	05-06	*	< LOD	< LOD	.530 (.470-.580)	.670 (.560-.830)	2224
	07-08	*	< LOD	< LOD	.430 (.400-.480)	.560 (.520-.610)	1685
	09-10	*	< LOD	< LOD	< LOD	.470 (.390-.530)	1947
Non-Hispanic blacks	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.600-.800)	2240
	05-06	*	< LOD	< LOD	.530 (.470-.600)	.670 (.600-.760)	2183
	07-08	*	< LOD	< LOD	.490 (.450-.530)	.610 (.560-.650)	1729
	09-10	*	< LOD	< LOD	.370 (.350-.390)	.480 (.410-.530)	1580
Non-Hispanic whites	03-04	*	< LOD	< LOD	.600 (.500-.600)	.700 (.600-.700)	3406
	05-06	*	< LOD	< LOD	.540 (.500-.580)	.650 (.610-.710)	3298
	07-08	*	< LOD	.360 (<LOD-.390)	.530 (.500-.550)	.660 (.620-.700)	3421
	09-10	*	< LOD	< LOD	.410 (.370-.450)	.520 (.480-.590)	3739

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.42, 0.4, 0.35, and 0.35 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Inorganic Mercury (2011 – 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.440 (.390-.480)	.600 (.520-.680)	7841
	13-14	*	< LOD	< LOD	.410 (.380-.440)	.530 (.490-.570)	5175
Age group							
1-5 years	11-12	*	< LOD	< LOD	< LOD	.280 (<LOD-.360)	657
	13-14	*	< LOD	< LOD	< LOD	< LOD	779
6-11 years	11-12	*	< LOD	< LOD	.280 (<LOD-.320)	.360 (.290-.450)	1044
	13-14	*	< LOD	< LOD	< LOD	.340 (<LOD-.420)	1074
12-19 years	11-12	*	< LOD	< LOD	.280 (<LOD-.350)	.400 (.300-.540)	1121
	13-14	*	< LOD	< LOD	< LOD	.360 (.290-.420)	627
20 years and older	11-12	*	< LOD	.290 (.270-.310)	.470 (.420-.530)	.630 (.550-.760)	5019
	13-14	*	< LOD	.270 (<LOD-.300)	.440 (.410-.470)	.560 (.510-.660)	2695
Gender							
Males	11-12	*	< LOD	< LOD	.420 (.370-.480)	.600 (.490-.680)	3925
	13-14	*	< LOD	< LOD	.400 (.340-.430)	.510 (.450-.560)	2570
Females	11-12	*	< LOD	.280 (<LOD-.300)	.450 (.390-.490)	.610 (.520-.700)	3916
	13-14	*	< LOD	< LOD	.420 (.390-.450)	.550 (.510-.590)	2605
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	.390 (.330-.460)	.580 (.460-.710)	1058
	13-14	*	< LOD	< LOD	.380 (.330-.410)	.540 (.420-.640)	958
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.410 (.370-.470)	.570 (.480-.670)	2170
	13-14	*	< LOD	< LOD	.380 (.330-.430)	.530 (.440-.630)	1110
Non-Hispanic whites	11-12	*	< LOD	.270 (<LOD-.300)	.430 (.370-.490)	.590 (.480-.690)	2477
	13-14	*	< LOD	< LOD	.420 (.360-.450)	.510 (.460-.570)	1835
All Hispanics	11-12	*	< LOD	< LOD	.430 (.370-.490)	.630 (.540-.760)	1902
	13-14	*	< LOD	< LOD	.380 (.330-.410)	.540 (.440-.650)	1467
Asians	11-12	*	< LOD	.350 (.310-.390)	.550 (.500-.590)	.700 (.630-.760)	997
	13-14	*	< LOD	.330 (.270-.390)	.570 (.420-.680)	.750 (.580-1.10)	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.27 and 0.27.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Ethyl Mercury (2011 – 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	7841
	13-14	*	< LOD	< LOD	< LOD	< LOD	5175
Age group							
1-5 years	11-12	*	< LOD	< LOD	< LOD	< LOD	657
	13-14	*	< LOD	< LOD	< LOD	< LOD	779
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	1044
	13-14	*	< LOD	< LOD	< LOD	< LOD	1074
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	1121
	13-14	*	< LOD	< LOD	< LOD	< LOD	627
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	5019
	13-14	*	< LOD	< LOD	< LOD	< LOD	2695
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	3925
	13-14	*	< LOD	< LOD	< LOD	< LOD	2570
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	3916
	13-14	*	< LOD	< LOD	< LOD	< LOD	2605
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	1058
	13-14	*	< LOD	< LOD	< LOD	< LOD	958
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	2170
	13-14	*	< LOD	< LOD	< LOD	< LOD	1110
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	2477
	13-14	*	< LOD	< LOD	< LOD	< LOD	1835
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	1902
	13-14	*	< LOD	< LOD	< LOD	< LOD	1467
Asians	11-12	*	< LOD	< LOD	< LOD	.160 (<LOD-.280)	997
	13-14	*	< LOD	< LOD	< LOD	< LOD	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.16 and 0.16.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Blood Methyl Mercury (2011 – 2014)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.498 (.423-.587)	.480 (.400-.570)	1.25 (.950-1.61)	2.81 (2.29-3.55)	4.43 (3.46-5.49)	7841
	13-14	.434 (.381-.495)	.420 (.340-.510)	1.09 (.940-1.27)	2.62 (2.18-3.04)	4.28 (3.74-4.93)	5175
Age group							
1-5 years	11-12	*	.140 (.120-.170)	.270 (.220-.350)	.540 (.420-.780)	.970 (.590-1.14)	657
	13-14	*	< LOD	.260 (.230-.310)	.660 (.550-.810)	1.11 (.960-1.48)	779
6-11 years	11-12	.209 (.182-.241)	.180 (.150-.220)	.400 (.330-.490)	.820 (.630-1.06)	1.34 (.940-1.84)	1044
	13-14	*	.150 (<LOD-.200)	.380 (.280-.530)	.960 (.700-1.26)	1.58 (1.26-2.11)	1074
12-19 years	11-12	.276 (.237-.322)	.270 (.210-.310)	.570 (.460-.670)	1.27 (.870-1.67)	2.15 (1.40-2.81)	1121
	13-14	.233 (.202-.269)	.190 (.140-.260)	.480 (.380-.560)	1.02 (.730-1.60)	1.84 (1.20-2.57)	627
20 years and older	11-12	.624 (.523-.746)	.610 (.500-.760)	1.53 (1.18-2.00)	3.28 (2.56-4.31)	4.97 (3.91-6.89)	5019
	13-14	.541 (.473-.618)	.540 (.450-.630)	1.32 (1.17-1.54)	3.05 (2.64-3.60)	4.92 (4.34-5.41)	2695
Gender							
Males	11-12	.509 (.433-.598)	.490 (.400-.590)	1.30 (.990-1.62)	2.84 (2.29-3.68)	4.77 (3.44-6.74)	3925
	13-14	.448 (.390-.515)	.430 (.350-.530)	1.10 (.940-1.37)	2.67 (2.22-3.33)	4.44 (3.88-5.40)	2570
Females	11-12	.489 (.413-.580)	.470 (.380-.560)	1.19 (.900-1.61)	2.72 (2.18-3.46)	3.99 (3.28-4.99)	3916
	13-14	.422 (.367-.485)	.400 (.330-.490)	1.08 (.900-1.22)	2.46 (2.03-2.92)	3.91 (3.32-4.93)	2605
Race/ethnicity							
Mexican Americans	11-12	.320 (.264-.387)	.330 (.260-.410)	.610 (.500-.770)	1.23 (.920-1.40)	1.66 (1.33-2.06)	1058
	13-14	.276 (.239-.318)	.260 (.210-.310)	.540 (.440-.650)	1.06 (.770-1.43)	1.72 (1.27-2.34)	958
Non-Hispanic blacks	11-12	.517 (.392-.681)	.510 (.380-.660)	1.13 (.750-1.61)	2.37 (1.66-3.08)	3.63 (2.57-5.16)	2170
	13-14	.481 (.407-.569)	.460 (.370-.580)	1.03 (.900-1.22)	2.08 (1.55-2.72)	3.33 (2.15-5.12)	1110
Non-Hispanic whites	11-12	.478 (.392-.583)	.470 (.360-.580)	1.25 (.870-1.69)	2.76 (2.06-3.69)	4.24 (2.92-6.38)	2477
	13-14	.420 (.357-.495)	.420 (.310-.530)	1.10 (.910-1.32)	2.62 (2.07-3.12)	4.01 (3.46-5.00)	1835
All Hispanics	11-12	.429 (.350-.525)	.420 (.340-.520)	.890 (.700-1.17)	1.81 (1.39-2.46)	2.94 (2.19-3.71)	1902
	13-14	.326 (.278-.382)	.310 (.250-.350)	.680 (.580-.790)	1.50 (1.15-1.89)	2.34 (1.79-3.00)	1467
Asians	11-12	1.58 (1.29-1.94)	2.16 (1.68-2.55)	4.35 (3.64-5.13)	7.57 (6.21-8.61)	10.5 (8.48-12.5)	997
	13-14	1.42 (1.16-1.74)	1.71 (1.17-2.07)	3.90 (3.31-4.54)	7.93 (6.42-9.21)	10.8 (9.57-13.6)	508

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.12 and 0.12.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Urinary Mercury (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	.447 (.406-.492)	.420 (.360-.480)	1.00 (.870-1.14)	2.08 (1.78-2.42)	3.19 (2.76-3.55)	2538
	05-06	.468 (.426-.514)	.460 (.410-.510)	1.03 (.900-1.12)	2.11 (1.88-2.36)	2.94 (2.58-3.26)	2578
	07-08	.443 (.408-.482)	.440 (.400-.470)	.880 (.760-1.00)	1.74 (1.62-1.96)	2.66 (2.29-3.08)	2634
	09-10	*	.400 (.360-.450)	.850 (.770-.910)	1.53 (1.30-1.81)	2.42 (2.07-2.72)	2865
Age group							
6-11 years	03-04	.254 (.213-.304)	.200 (.160-.250)	.440 (.330-.580)	1.16 (.610-1.61)	1.96 (1.13-2.97)	287
	05-06	.333 (.267-.416)	.320 (.250-.390)	.650 (.470-.840)	1.32 (.930-1.88)	2.18 (1.28-3.40)	355
	07-08	.301 (.260-.347)	.290 (.230-.340)	.520 (.430-.620)	1.03 (.770-1.23)	1.87 (1.03-3.48)	398
	09-10	*	.260 (.220-.320)	.510 (.430-.620)	1.03 (.730-1.31)	1.58 (1.18-1.88)	379
12-19 years	03-04	.358 (.313-.408)	.330 (.290-.370)	.700 (.530-.840)	1.60 (1.14-2.52)	2.93 (1.88-3.66)	722
	05-06	.372 (.286-.486)	.350 (.270-.470)	.740 (.580-.920)	1.61 (.970-2.81)	2.59 (1.40-4.45)	703
	07-08	.364 (.326-.406)	.380 (.320-.450)	.590 (.550-.650)	1.24 (.830-1.71)	1.82 (1.41-2.29)	375
	09-10	*	.290 (.230-.360)	.530 (.470-.630)	1.09 (.890-1.31)	1.73 (1.28-2.31)	455
20 years and older	03-04	.495 (.442-.555)	.480 (.410-.570)	1.12 (.930-1.29)	2.20 (1.85-2.65)	3.33 (2.76-3.88)	1529
	05-06	.505 (.468-.545)	.510 (.460-.560)	1.11 (1.04-1.16)	2.23 (1.97-2.50)	3.11 (2.64-3.37)	1520
	07-08	.477 (.435-.523)	.470 (.430-.520)	.970 (.850-1.10)	1.89 (1.69-2.20)	2.82 (2.33-3.56)	1861
	09-10	*	.450 (.390-.510)	.890 (.810-1.00)	1.66 (1.40-2.01)	2.53 (2.21-2.84)	2031
Gender							
Males	03-04	.433 (.405-.463)	.400 (.350-.460)	.940 (.840-1.05)	1.88 (1.63-2.18)	2.68 (2.34-3.05)	1266
	05-06	.464 (.411-.523)	.450 (.400-.520)	.980 (.860-1.11)	2.03 (1.57-2.48)	3.00 (2.48-3.37)	1270
	07-08	.457 (.417-.501)	.460 (.400-.520)	.880 (.780-1.01)	1.68 (1.53-1.77)	2.40 (2.11-2.76)	1326
	09-10	*	.410 (.340-.480)	.860 (.750-.950)	1.46 (1.29-1.66)	2.21 (1.93-2.53)	1404
Females	03-04	.460 (.396-.534)	.430 (.330-.530)	1.07 (.870-1.28)	2.26 (1.77-2.90)	3.54 (2.76-4.31)	1272
	05-06	.472 (.424-.525)	.470 (.390-.550)	1.07 (.900-1.19)	2.14 (1.84-2.50)	2.89 (2.60-3.38)	1308
	07-08	.431 (.388-.478)	.430 (.380-.460)	.870 (.710-1.05)	1.88 (1.55-2.38)	2.92 (2.27-4.17)	1308
	09-10	*	.390 (.360-.450)	.840 (.730-.940)	1.61 (1.29-2.03)	2.61 (2.16-3.12)	1461
Race/ethnicity							
Mexican Americans	03-04	.416 (.340-.509)	.360 (.280-.430)	.960 (.700-1.23)	2.19 (1.39-3.24)	3.16 (1.99-6.30)	619
	05-06	.451 (.369-.551)	.420 (.310-.560)	1.01 (.780-1.25)	2.22 (1.48-2.64)	3.00 (2.27-4.01)	651
	07-08	.409 (.349-.480)	.370 (.330-.450)	.780 (.700-.950)	1.82 (1.26-1.97)	2.55 (1.87-3.08)	514
	09-10	*	.350 (.280-.430)	.670 (.520-.890)	1.53 (1.06-1.84)	2.29 (1.81-2.76)	615
Non-Hispanic blacks	03-04	.476 (.413-.549)	.430 (.360-.530)	.890 (.770-1.00)	1.96 (1.60-2.31)	3.09 (2.03-4.89)	713
	05-06	.453 (.384-.533)	.450 (.380-.550)	.890 (.710-1.13)	1.78 (1.34-2.29)	2.57 (2.21-3.15)	691
	07-08	.478 (.411-.556)	.460 (.380-.540)	.910 (.770-1.06)	1.85 (1.42-2.41)	2.76 (1.97-4.19)	589
	09-10	*	.410 (.340-.490)	.840 (.650-1.08)	1.66 (1.34-1.95)	2.64 (1.88-3.30)	546
Non-Hispanic whites	03-04	.441 (.382-.509)	.420 (.330-.520)	1.01 (.840-1.23)	2.08 (1.67-2.46)	3.24 (2.67-3.60)	1066
	05-06	.459 (.409-.513)	.440 (.400-.510)	1.00 (.860-1.12)	2.07 (1.77-2.40)	2.81 (2.47-3.37)	1044
	07-08	.431 (.378-.493)	.430 (.380-.480)	.880 (.700-1.07)	1.71 (1.50-2.18)	2.70 (2.18-3.59)	1100
	09-10	*	.390 (.330-.470)	.850 (.750-.950)	1.52 (1.26-2.01)	2.42 (1.93-2.85)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.14, 0.11, 0.08, and 0.08 respectively.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Urinary Mercury (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.324 (.285-.368)	.320 (.280-.370)	.660 (.580-.770)	1.37 (1.15-1.59)	1.83 (1.62-2.14)	2507
	13-14	.246 (.221-.273)	.200 (.170-.240)	.470 (.400-.570)	1.07 (.900-1.22)	1.64 (1.35-1.96)	2666
Age group							
6-11 years	11-12	.241 (.206-.283)	.220 (.190-.270)	.450 (.390-.530)	.930 (.680-1.36)	1.37 (.990-2.03)	401
	13-14	*	< LOD	.220 (.150-.310)	.560 (.340-.840)	.890 (.640-1.10)	401
12-19 years	11-12	.257 (.212-.312)	.270 (.220-.340)	.490 (.390-.600)	.840 (.650-1.24)	1.31 (.920-1.75)	390
	13-14	*	< LOD	.240 (.200-.310)	.560 (.400-.860)	1.02 (.610-1.81)	452
20 years and older	11-12	.346 (.303-.396)	.340 (.290-.400)	.720 (.620-.850)	1.49 (1.20-1.67)	1.93 (1.67-2.29)	1716
	13-14	.274 (.246-.305)	.240 (.200-.280)	.540 (.450-.630)	1.16 (1.00-1.33)	1.76 (1.44-2.04)	1813
Gender							
Males	11-12	.342 (.293-.399)	.330 (.290-.380)	.670 (.580-.810)	1.34 (1.03-1.67)	1.91 (1.54-2.51)	1260
	13-14	.243 (.219-.268)	.200 (.170-.220)	.480 (.390-.600)	1.07 (.840-1.33)	1.55 (1.28-1.96)	1319
Females	11-12	.307 (.262-.360)	.300 (.250-.360)	.660 (.540-.770)	1.37 (1.17-1.54)	1.82 (1.54-2.14)	1247
	13-14	.249 (.218-.284)	.210 (.170-.260)	.470 (.390-.570)	1.07 (.820-1.27)	1.75 (1.25-2.26)	1347
Race/ethnicity							
Mexican Americans	11-12	.301 (.261-.348)	.300 (.200-.400)	.620 (.510-.680)	1.25 (.910-1.53)	1.75 (1.32-2.25)	317
	13-14	.229 (.198-.265)	.160 (.150-.210)	.450 (.300-.620)	1.12 (.780-1.35)	1.47 (.970-2.38)	454
Non-Hispanic blacks	11-12	.360 (.316-.410)	.360 (.320-.400)	.670 (.570-.800)	1.33 (1.06-1.60)	1.99 (1.48-3.06)	671
	13-14	.279 (.228-.340)	.250 (.190-.320)	.530 (.400-.690)	1.10 (.900-1.49)	1.82 (1.11-2.48)	580
Non-Hispanic whites	11-12	.308 (.260-.365)	.290 (.260-.360)	.630 (.510-.810)	1.37 (1.09-1.64)	1.77 (1.49-2.14)	819
	13-14	.240 (.211-.271)	.200 (.160-.230)	.460 (.370-.580)	1.06 (.840-1.24)	1.64 (1.24-2.04)	988
All Hispanics	11-12	.330 (.299-.364)	.330 (.270-.390)	.680 (.610-.760)	1.30 (1.15-1.53)	1.98 (1.61-2.42)	574
	13-14	.239 (.207-.276)	.180 (.150-.240)	.460 (.360-.620)	1.14 (.800-1.35)	1.57 (1.24-2.15)	702
Asians	11-12	.430 (.351-.527)	.450 (.330-.580)	.910 (.750-1.12)	1.69 (1.31-2.06)	2.41 (1.77-3.53)	355
	13-14	.313 (.269-.363)	.270 (.220-.340)	.620 (.520-.710)	1.18 (.890-1.66)	1.78 (1.20-3.10)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.05 and 0.13.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Urinary Mercury (creatinine corrected) (2003 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	.443 (.404-.486)	.447 (.392-.498)	.909 (.785-1.00)	1.65 (1.40-1.86)	2.35 (1.88-2.85)	2537
	05-06	.460 (.414-.511)	.450 (.410-.510)	.870 (.790-1.00)	1.63 (1.44-1.75)	2.26 (2.12-2.50)	2578
	07-08	.462 (.425-.502)	.450 (.400-.490)	.820 (.750-.960)	1.57 (1.38-1.73)	2.32 (2.00-2.89)	2634
	09-10	*	.409 (.367-.459)	.793 (.691-.893)	1.43 (1.24-1.67)	2.09 (1.79-2.39)	2865
Age group							
6-11 years	03-04	.297 (.246-.358)	.276 (.208-.347)	.485 (.391-.630)	1.25 (.667-1.79)	1.79 (1.11-2.61)	286
	05-06	.411 (.323-.524)	.390 (.290-.500)	.710 (.510-.960)	1.30 (.990-2.12)	2.55 (1.38-3.50)	355
	07-08	.393 (.351-.440)	.350 (.300-.440)	.630 (.540-.770)	1.15 (.860-1.50)	1.68 (1.18-2.99)	398
	09-10	*	.357 (.306-.406)	.632 (.500-.750)	1.04 (.863-1.26)	1.62 (1.19-1.98)	379
12-19 years	03-04	.255 (.225-.289)	.217 (.196-.275)	.464 (.376-.535)	1.06 (.714-1.39)	1.67 (1.13-2.03)	722
	05-06	.286 (.230-.356)	.260 (.200-.320)	.500 (.380-.660)	1.09 (.660-1.70)	1.76 (1.11-2.67)	703
	07-08	.284 (.251-.320)	.280 (.230-.300)	.500 (.400-.550)	.890 (.620-1.08)	1.18 (.980-1.36)	375
	09-10	*	.226 (.202-.287)	.481 (.429-.553)	.917 (.736-1.18)	1.41 (1.12-1.62)	455
20 years and older	03-04	.508 (.455-.566)	.525 (.447-.616)	1.00 (.875-1.09)	1.76 (1.46-2.11)	2.54 (2.04-3.00)	1529
	05-06	.503 (.461-.549)	.510 (.470-.550)	.940 (.850-1.07)	1.69 (1.50-1.86)	2.31 (2.12-2.54)	1520
	07-08	.507 (.463-.555)	.500 (.450-.550)	.940 (.810-1.02)	1.69 (1.51-2.01)	2.56 (2.09-3.17)	1861
	09-10	*	.454 (.395-.517)	.861 (.731-.988)	1.51 (1.29-1.85)	2.15 (1.88-2.57)	2031
Gender							
Males	03-04	.365 (.333-.400)	.362 (.309-.417)	.696 (.620-.784)	1.31 (1.18-1.44)	1.87 (1.51-2.30)	1266
	05-06	.380 (.336-.431)	.390 (.330-.440)	.740 (.600-.890)	1.27 (1.09-1.47)	1.73 (1.62-1.85)	1270
	07-08	.408 (.374-.445)	.390 (.350-.450)	.730 (.650-.810)	1.22 (1.11-1.36)	1.69 (1.54-2.11)	1326
	09-10	*	.337 (.298-.391)	.675 (.585-.802)	1.19 (1.06-1.29)	1.50 (1.33-1.78)	1404
Females	03-04	.532 (.472-.599)	.545 (.455-.652)	1.06 (.969-1.21)	1.88 (1.64-2.30)	2.77 (2.12-3.56)	1271
	05-06	.552 (.494-.617)	.540 (.490-.620)	1.09 (.850-1.27)	1.96 (1.72-2.14)	2.78 (2.35-3.17)	1308
	07-08	.520 (.469-.576)	.490 (.460-.540)	.960 (.820-1.11)	1.92 (1.58-2.24)	2.83 (2.24-3.50)	1308
	09-10	*	.475 (.423-.552)	.890 (.771-1.07)	1.81 (1.43-2.09)	2.57 (2.09-2.94)	1461
Race/ethnicity							
Mexican Americans	03-04	.384 (.307-.480)	.365 (.280-.455)	.768 (.619-.990)	1.62 (1.23-2.16)	2.32 (1.78-4.01)	618
	05-06	.425 (.337-.536)	.400 (.310-.490)	.840 (.560-1.29)	1.82 (1.30-2.47)	2.63 (2.22-3.20)	651
	07-08	.409 (.350-.479)	.380 (.310-.480)	.790 (.690-.850)	1.55 (1.08-1.98)	2.03 (1.55-2.70)	514
	09-10	*	.333 (.272-.400)	.660 (.494-.861)	1.29 (1.02-1.54)	1.95 (1.52-2.89)	615
Non-Hispanic blacks	03-04	.343 (.301-.391)	.306 (.265-.368)	.587 (.522-.687)	1.28 (.964-1.63)	2.13 (1.41-2.87)	713
	05-06	.328 (.285-.378)	.320 (.270-.370)	.610 (.470-.780)	1.15 (.930-1.40)	1.64 (1.29-1.96)	691
	07-08	.350 (.303-.404)	.330 (.280-.380)	.590 (.490-.690)	1.10 (.840-1.46)	1.85 (1.13-2.77)	589
	09-10	*	.317 (.259-.393)	.582 (.500-.659)	1.05 (.900-1.30)	1.55 (1.18-1.96)	546
Non-Hispanic whites	03-04	.463 (.400-.537)	.476 (.385-.588)	.970 (.800-1.07)	1.67 (1.32-2.11)	2.40 (1.88-2.90)	1066
	05-06	.475 (.426-.531)	.490 (.440-.540)	.890 (.820-1.02)	1.61 (1.42-1.75)	2.23 (1.98-2.50)	1044
	07-08	.481 (.423-.546)	.480 (.390-.540)	.890 (.750-1.03)	1.58 (1.34-2.02)	2.49 (1.89-3.18)	1100
	09-10	*	.434 (.370-.500)	.833 (.689-1.04)	1.50 (1.26-1.87)	2.12 (1.80-2.64)	1225

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Urinary Mercury (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.367 (.333-.405)	.353 (.306-.394)	.676 (.623-.754)	1.33 (1.13-1.50)	1.75 (1.49-2.32)	2505
	13-14	.283 (.260-.309)	.270 (.250-.290)	.571 (.511-.644)	1.20 (1.05-1.36)	1.61 (1.47-1.81)	2665
Age group							
6-11 years	11-12	.345 (.298-.398)	.306 (.276-.344)	.537 (.441-.613)	1.08 (.884-1.43)	1.62 (1.07-2.34)	400
	13-14	*	< LOD	.429 (.310-.529)	.750 (.563-.897)	1.11 (.713-1.72)	401
12-19 years	11-12	.246 (.219-.277)	.221 (.190-.269)	.405 (.368-.453)	.735 (.571-1.11)	1.21 (.742-1.49)	390
	13-14	*	< LOD	.257 (.200-.281)	.580 (.391-.735)	.846 (.580-1.07)	452
20 years and older	11-12	.393 (.351-.439)	.383 (.330-.437)	.750 (.673-.805)	1.38 (1.17-1.63)	1.95 (1.50-2.48)	1715
	13-14	.318 (.291-.349)	.304 (.281-.333)	.644 (.561-.741)	1.32 (1.13-1.47)	1.76 (1.50-1.88)	1812
Gender							
Males	11-12	.320 (.278-.368)	.294 (.267-.358)	.558 (.478-.667)	1.11 (.791-1.44)	1.57 (1.21-2.00)	1259
	13-14	.242 (.223-.263)	.231 (.206-.259)	.476 (.429-.542)	.902 (.779-1.11)	1.31 (1.13-1.49)	1318
Females	11-12	.418 (.374-.466)	.409 (.355-.453)	.800 (.706-.900)	1.46 (1.29-1.65)	2.00 (1.63-2.60)	1246
	13-14	.330 (.297-.367)	.315 (.273-.356)	.692 (.600-.822)	1.44 (1.18-1.68)	1.83 (1.60-2.12)	1347
Race/ethnicity							
Mexican Americans	11-12	.339 (.288-.399)	.286 (.225-.393)	.641 (.433-.789)	1.17 (1.00-1.42)	1.70 (1.31-2.24)	317
	13-14	.261 (.231-.295)	.237 (.209-.273)	.516 (.409-.709)	1.04 (.810-1.48)	1.62 (1.11-2.55)	454
Non-Hispanic blacks	11-12	.280 (.245-.320)	.261 (.224-.294)	.467 (.411-.529)	.896 (.638-1.14)	1.43 (1.10-1.57)	671
	13-14	.211 (.169-.264)	.202 (.152-.269)	.409 (.333-.516)	.794 (.643-1.10)	1.34 (.880-1.52)	580
Non-Hispanic whites	11-12	.372 (.323-.428)	.364 (.294-.433)	.700 (.619-.805)	1.35 (1.05-1.63)	1.75 (1.41-2.48)	817
	13-14	.295 (.269-.323)	.278 (.257-.310)	.602 (.516-.689)	1.27 (1.08-1.45)	1.64 (1.46-1.82)	987
All Hispanics	11-12	.369 (.342-.399)	.331 (.283-.384)	.674 (.612-.772)	1.24 (1.13-1.44)	1.86 (1.47-2.92)	574
	13-14	.267 (.237-.300)	.237 (.214-.273)	.541 (.448-.634)	1.07 (.837-1.36)	1.61 (1.24-1.86)	702
Asians	11-12	.577 (.473-.705)	.562 (.467-.700)	1.16 (.872-1.44)	1.82 (1.54-2.00)	2.29 (1.90-3.12)	355
	13-14	.488 (.422-.565)	.475 (.373-.600)	.917 (.779-1.06)	1.88 (1.35-2.19)	2.57 (1.88-4.24)	291

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Mercury_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Mercury_FactSheet.html

Urinary Molybdenum (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	45.9 (40.1-52.6)	50.7 (44.6-58.4)	84.9 (78.7-92.3)	135 (125-146)	180 (154-216)	2257
	01-02	45.0 (42.1-48.0)	52.4 (48.9-55.5)	83.4 (79.1-88.7)	124 (117-130)	165 (145-176)	2690
	03-04	39.7 (37.7-41.7)	44.5 (41.6-46.7)	78.5 (74.9-82.3)	111 (105-118)	138 (133-146)	2558
	05-06	45.0 (42.4-47.8)	51.0 (47.2-54.7)	81.5 (77.4-85.8)	127 (117-132)	158 (144-174)	2576
	07-08	45.2 (43.1-47.3)	49.7 (47.4-52.0)	86.2 (82.3-89.3)	136 (128-142)	163 (154-171)	2627
	09-10	42.7 (40.8-44.7)	45.2 (43.6-47.3)	79.9 (75.9-83.0)	121 (112-130)	160 (147-180)	2848
Age group							
6-11 years	99-00	78.2 (61.0-100)	84.8 (67.7-105)	126 (106-147)	178 (147-259)	267 (159-840)	310
	01-02	63.3 (53.4-75.0)	69.2 (63.0-77.6)	109 (94.5-124)	169 (138-197)	197 (161-291)	368
	03-04	62.2 (56.7-68.3)	71.3 (55.7-84.1)	108 (92.7-122)	138 (127-152)	181 (138-235)	290
	05-06	65.6 (56.6-76.0)	73.5 (62.8-85.5)	108 (98.6-115)	154 (130-176)	181 (154-205)	355
	07-08	69.3 (60.8-79.0)	72.8 (62.1-83.9)	123 (99.9-148)	169 (154-217)	235 (169-282)	394
	09-10	65.0 (57.8-73.2)	69.7 (61.1-84.2)	123 (103-138)	180 (146-205)	218 (180-263)	378
12-19 years	99-00	54.3 (47.6-62.0)	60.6 (52.2-70.3)	93.3 (79.9-109)	146 (112-171)	188 (146-216)	648
	01-02	60.6 (55.5-66.2)	65.7 (58.7-73.1)	97.1 (91.8-108)	145 (129-159)	179 (155-227)	762
	03-04	52.5 (49.0-56.3)	59.6 (55.5-65.1)	87.3 (84.5-91.4)	118 (105-125)	143 (130-156)	725
	05-06	59.1 (53.7-65.1)	63.8 (57.9-69.4)	96.6 (86.3-103)	136 (127-147)	173 (148-202)	701
	07-08	64.1 (58.6-70.2)	68.6 (63.7-80.2)	107 (97.2-118)	149 (125-167)	174 (151-196)	376
	09-10	52.4 (47.5-57.7)	58.5 (51.4-65.6)	96.2 (85.0-104)	148 (120-170)	178 (151-201)	451
20 years and older	99-00	41.7 (36.7-47.4)	46.6 (40.5-52.5)	76.7 (73.4-82.2)	126 (114-134)	168 (143-206)	1299
	01-02	41.1 (38.3-44.1)	47.6 (43.7-51.2)	79.1 (71.9-83.6)	114 (103-124)	150 (130-166)	1560
	03-04	35.9 (34.0-38.0)	40.3 (37.6-42.1)	71.5 (67.3-75.2)	105 (98.6-111)	133 (119-144)	1543
	05-06	41.3 (38.7-44.0)	46.0 (41.7-49.6)	75.7 (72.1-80.3)	116 (107-127)	153 (135-171)	1520
	07-08	40.8 (38.7-43.0)	44.5 (42.2-47.8)	77.7 (74.1-81.2)	123 (114-135)	152 (145-164)	1857
	09-10	39.6 (37.5-41.8)	42.0 (39.8-43.9)	73.5 (69.0-76.8)	107 (100-113)	144 (130-163)	2019
Gender							
Males	99-00	52.7 (45.7-60.7)	57.5 (48.5-68.4)	93.2 (83.8-106)	150 (128-187)	215 (161-278)	1121
	01-02	51.0 (46.6-55.7)	56.9 (52.0-62.6)	88.5 (81.6-96.5)	130 (120-141)	169 (145-194)	1335
	03-04	45.5 (43.3-47.8)	51.0 (48.1-55.4)	85.8 (82.8-90.7)	119 (112-130)	148 (136-163)	1281
	05-06	50.9 (48.2-53.9)	56.0 (51.0-60.3)	85.7 (80.3-92.8)	130 (122-136)	161 (145-177)	1271
	07-08	50.6 (48.1-53.2)	56.7 (52.4-60.6)	93.6 (88.7-98.7)	148 (137-150)	171 (159-178)	1327
	09-10	46.2 (43.5-49.1)	50.2 (46.4-52.7)	81.8 (77.0-85.9)	127 (113-144)	169 (147-197)	1398
Females	99-00	40.4 (34.8-46.8)	45.6 (40.4-52.0)	77.3 (71.0-85.7)	119 (105-138)	154 (132-180)	1136
	01-02	39.9 (37.2-42.9)	45.8 (42.8-49.3)	78.4 (72.6-82.9)	115 (104-128)	158 (130-177)	1355
	03-04	34.9 (32.2-37.7)	37.9 (33.5-41.6)	67.3 (64.6-72.2)	101 (97.3-108)	127 (114-139)	1277
	05-06	40.0 (36.4-43.8)	45.6 (40.0-51.0)	75.6 (71.2-82.0)	118 (107-128)	154 (136-179)	1305
	07-08	40.5 (38.1-43.0)	43.5 (39.0-48.0)	77.0 (72.0-84.5)	123 (114-134)	152 (142-165)	1300
	09-10	39.6 (36.9-42.4)	41.4 (39.0-43.8)	76.8 (70.7-82.0)	114 (106-127)	151 (135-170)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 0.8, 1.5, 0.92, 0.92, and 0.92 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Molybdenum (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	47.0 (42.1-52.4)	53.2 (49.2-59.0)	80.6 (73.7-91.7)	121 (103-139)	152 (120-217)	780
	01-02	49.3 (46.5-52.3)	55.7 (50.4-61.0)	86.4 (80.8-94.1)	133 (113-155)	177 (142-207)	683
	03-04	47.0 (43.1-51.1)	54.4 (48.2-59.9)	82.9 (73.2-91.0)	121 (106-143)	152 (141-169)	618
	05-06	55.1 (51.7-58.7)	58.4 (54.1-63.6)	98.3 (91.5-105)	140 (134-150)	177 (153-200)	652
	07-08	53.3 (47.6-59.6)	57.3 (49.6-64.3)	90.4 (82.5-97.2)	140 (125-156)	176 (154-191)	515
	09-10	49.4 (45.9-53.2)	51.1 (46.4-55.4)	81.4 (76.2-85.9)	134 (115-149)	180 (148-231)	613
Non-Hispanic blacks	99-00	57.7 (51.0-65.2)	62.2 (55.0-71.5)	97.8 (85.0-110)	153 (126-188)	206 (150-274)	546
	01-02	53.2 (49.9-56.7)	60.3 (55.1-63.8)	90.0 (81.0-101)	132 (121-147)	166 (147-170)	667
	03-04	46.0 (41.7-50.8)	46.2 (40.9-55.2)	82.3 (73.3-91.3)	117 (109-129)	156 (135-175)	723
	05-06	48.1 (44.7-51.8)	52.0 (48.3-55.7)	80.0 (71.6-89.4)	125 (112-133)	160 (139-189)	692
	07-08	51.9 (45.6-59.1)	56.9 (47.5-65.8)	90.3 (83.0-102)	137 (118-158)	168 (147-180)	589
	09-10	45.8 (41.4-50.8)	52.1 (47.9-55.6)	85.6 (77.7-94.0)	132 (107-166)	184 (152-216)	544
Non-Hispanic whites	99-00	44.5 (37.0-53.4)	48.5 (41.1-59.8)	85.0 (76.7-96.5)	135 (119-154)	187 (146-223)	760
	01-02	42.2 (38.5-46.2)	48.9 (44.2-53.2)	80.7 (71.9-85.8)	117 (108-129)	152 (134-180)	1132
	03-04	37.1 (34.7-39.6)	41.3 (38.1-44.5)	75.2 (69.2-79.6)	107 (99.3-115)	130 (119-142)	1074
	05-06	42.8 (39.7-46.1)	48.6 (42.3-53.4)	79.0 (73.5-84.0)	123 (108-132)	156 (136-178)	1041
	07-08	41.7 (39.2-44.5)	46.5 (42.9-49.8)	81.2 (76.6-86.6)	131 (119-142)	153 (149-164)	1095
	09-10	40.6 (38.1-43.1)	42.6 (39.6-45.3)	75.9 (70.6-81.0)	114 (104-123)	148 (134-166)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 0.8, 1.5, 0.92, 0.92, and 0.92 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Molybdenum (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	37.1 (35.1-39.1)	40.0 (37.6-42.2)	69.1 (64.9-74.8)	111 (102-123)	146 (140-160)	2504
	13-14	33.9 (31.6-36.4)	36.0 (32.1-40.3)	68.0 (63.2-72.9)	105 (98.7-112)	139 (128-156)	2664
Age group							
6-11 years	11-12	58.4 (51.5-66.2)	65.1 (52.8-74.5)	116 (95.6-129)	168 (145-199)	211 (187-283)	399
	13-14	51.7 (47.1-56.6)	54.7 (49.3-61.9)	98.2 (82.2-105)	144 (130-164)	182 (159-210)	402
12-19 years	11-12	46.4 (40.2-53.7)	51.0 (44.2-61.8)	83.6 (70.1-97.7)	141 (106-153)	163 (145-173)	390
	13-14	48.2 (41.5-55.8)	55.9 (49.0-64.8)	89.3 (80.1-97.2)	128 (105-150)	156 (136-180)	451
20 years and older	11-12	34.1 (31.8-36.5)	37.3 (33.6-39.8)	63.6 (59.2-69.2)	101 (92.9-109)	136 (120-146)	1715
	13-14	30.8 (28.5-33.3)	32.7 (28.3-36.0)	61.6 (55.9-67.4)	95.4 (89.3-99.4)	129 (116-137)	1811
Gender							
Males	11-12	42.5 (38.6-46.9)	45.9 (39.7-52.6)	77.1 (71.2-84.0)	122 (105-135)	146 (136-173)	1262
	13-14	37.9 (35.2-40.9)	41.3 (38.0-45.9)	73.9 (68.4-79.2)	113 (104-127)	152 (134-173)	1318
Females	11-12	32.5 (30.0-35.2)	33.7 (30.5-38.7)	61.5 (57.7-66.9)	102 (92.9-117)	148 (121-170)	1242
	13-14	30.4 (28.2-32.8)	31.7 (26.8-36.0)	62.6 (56.0-67.2)	96.3 (87.1-105)	129 (115-142)	1346
Race/ethnicity							
Mexican Americans	11-12	44.1 (39.8-49.0)	49.4 (41.6-52.9)	78.8 (72.1-87.0)	117 (102-146)	167 (136-214)	317
	13-14	40.9 (34.4-48.7)	43.7 (34.8-55.7)	79.3 (64.6-90.8)	119 (96.6-149)	161 (133-205)	453
Non-Hispanic blacks	11-12	44.4 (41.3-47.7)	48.6 (44.6-51.8)	78.5 (70.8-89.4)	125 (110-139)	158 (138-177)	669
	13-14	43.8 (39.0-49.2)	49.3 (40.6-55.9)	79.6 (70.0-89.3)	116 (105-132)	150 (124-182)	581
Non-Hispanic whites	11-12	33.8 (31.4-36.4)	36.9 (32.0-40.2)	64.4 (59.4-69.4)	103 (94.2-117)	141 (125-146)	820
	13-14	30.5 (27.5-33.8)	32.1 (26.5-37.4)	63.0 (54.7-68.4)	96.7 (88.9-105)	129 (113-143)	985
All Hispanics	11-12	43.3 (38.9-48.2)	47.6 (40.2-53.7)	81.4 (70.5-90.3)	123 (113-141)	167 (145-184)	573
	13-14	39.8 (34.7-45.7)	42.5 (34.3-52.5)	78.2 (68.4-86.4)	115 (98.0-134)	150 (134-183)	701
Asians	11-12	44.2 (38.8-50.4)	49.7 (44.0-55.2)	83.0 (72.0-95.9)	124 (106-157)	166 (126-227)	353
	13-14	36.0 (31.3-41.4)	34.9 (31.2-40.5)	70.0 (56.1-77.6)	127 (99.4-166)	196 (133-259)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.99 and 0.8.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Molybdenum (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	43.2 (40.0-46.6)	41.6 (38.5-45.2)	63.5 (59.3-68.8)	108 (97.3-115)	144 (125-171)	2257
	01-02	42.5 (39.9-45.2)	42.2 (40.1-45.2)	62.0 (58.4-66.4)	98.8 (90.1-109)	130 (120-149)	2689
	03-04	39.4 (37.6-41.3)	39.2 (37.9-40.7)	58.3 (55.6-61.5)	89.0 (80.5-99.0)	120 (107-135)	2558
	05-06	44.3 (42.4-46.3)	43.9 (41.8-45.7)	65.9 (61.8-68.6)	97.3 (92.5-103)	132 (125-143)	2576
	07-08	47.1 (45.8-48.4)	46.3 (44.8-47.7)	72.4 (68.7-74.3)	104 (96.7-111)	137 (127-152)	2627
	09-10	45.5 (43.2-47.8)	44.4 (41.9-47.4)	67.2 (64.7-69.4)	105 (95.4-121)	143 (129-157)	2848
Age group 6-11 years	99-00	85.9 (73.7-100)	79.3 (71.6-88.4)	122 (107-133)	173 (130-243)	214 (154-1040)	310
	01-02	77.2 (73.1-81.5)	77.6 (71.8-84.5)	109 (99.4-120)	159 (129-170)	185 (165-219)	368
	03-04	72.5 (65.2-80.7)	73.5 (65.1-79.9)	101 (84.9-117)	132 (107-158)	160 (129-257)	290
	05-06	81.0 (71.9-91.3)	78.6 (72.1-89.0)	112 (93.7-134)	161 (133-199)	201 (160-261)	355
	07-08	90.4 (81.8-99.8)	88.2 (79.2-101)	133 (113-147)	206 (159-259)	274 (224-354)	394
	09-10	88.6 (81.9-95.9)	89.0 (79.2-95.4)	131 (123-148)	174 (154-191)	195 (178-216)	378
12-19 years	99-00	41.9 (39.3-44.6)	40.5 (37.7-44.4)	57.3 (51.5-62.5)	85.4 (67.4-107)	112 (78.4-185)	648
	01-02	43.4 (40.8-46.1)	44.1 (40.8-47.2)	60.8 (57.6-63.7)	85.5 (79.7-93.8)	106 (94.8-118)	762
	03-04	37.5 (35.4-39.8)	38.9 (36.9-41.8)	53.2 (50.3-56.1)	71.9 (64.6-76.9)	81.0 (74.3-102)	725
	05-06	45.5 (42.5-48.7)	45.7 (41.3-49.2)	64.6 (58.5-71.2)	91.4 (75.3-102)	109 (95.0-131)	701
	07-08	50.1 (47.2-53.2)	50.1 (44.2-53.4)	71.6 (64.0-79.6)	95.8 (85.1-107)	129 (99.5-138)	376
	09-10	49.0 (45.3-53.0)	50.7 (44.6-56.2)	67.6 (63.0-73.1)	93.6 (85.8-101)	126 (96.4-134)	451
20 years and older	99-00	39.6 (36.9-42.6)	38.5 (36.1-41.0)	56.4 (53.5-60.7)	92.5 (83.1-100)	122 (116-147)	1299
	01-02	39.3 (36.8-42.0)	39.6 (36.4-42.1)	57.2 (52.9-61.0)	86.7 (75.2-96.8)	123 (109-139)	1559
	03-04	36.9 (35.0-38.9)	37.0 (35.7-38.4)	53.5 (50.0-56.9)	79.8 (75.9-87.5)	118 (101-134)	1543
	05-06	41.2 (39.3-43.1)	40.5 (38.8-42.7)	59.1 (55.6-62.8)	87.9 (79.7-96.9)	119 (103-132)	1520
	07-08	43.5 (42.1-44.9)	42.9 (41.3-44.7)	64.9 (61.7-69.9)	94.7 (90.8-97.1)	122 (110-132)	1857
	09-10	41.9 (40.0-43.9)	41.2 (39.4-43.0)	61.9 (59.0-64.0)	90.4 (84.3-98.5)	127 (115-141)	2019
Gender Males	99-00	40.8 (37.5-44.3)	38.5 (37.2-40.4)	62.4 (55.9-68.4)	101 (83.9-118)	131 (112-179)	1121
	01-02	40.3 (37.1-43.8)	40.2 (36.3-43.3)	60.5 (54.8-66.3)	91.3 (83.4-106)	123 (107-155)	1334
	03-04	38.3 (36.1-40.7)	37.8 (36.1-39.3)	56.3 (53.3-59.3)	85.7 (77.2-96.7)	118 (100-139)	1281
	05-06	41.8 (39.5-44.2)	41.7 (39.2-44.1)	62.1 (58.1-67.4)	94.6 (84.2-101)	126 (112-132)	1271
	07-08	45.3 (43.8-46.8)	44.6 (42.9-46.7)	72.3 (65.4-74.8)	105 (96.0-118)	135 (126-152)	1327
	09-10	42.1 (39.6-44.9)	41.3 (38.7-44.2)	63.4 (59.4-67.4)	101 (88.3-121)	139 (123-151)	1398
Females	99-00	45.5 (41.5-50.0)	44.1 (39.5-48.8)	64.4 (59.5-70.5)	112 (95.2-121)	152 (122-181)	1136
	01-02	44.6 (42.2-47.1)	45.1 (42.2-46.9)	63.6 (59.5-69.4)	107 (92.5-119)	136 (117-169)	1355
	03-04	40.5 (38.1-43.0)	41.1 (38.7-43.7)	61.4 (56.8-65.1)	90.1 (82.2-103)	122 (115-142)	1277
	05-06	46.9 (44.7-49.2)	46.5 (43.9-48.8)	67.2 (63.3-71.7)	103 (93.6-110)	157 (126-173)	1305
	07-08	48.9 (47.2-50.7)	48.3 (45.7-51.0)	72.6 (69.2-74.4)	103 (93.6-116)	139 (113-177)	1300
	09-10	48.9 (46.4-51.5)	48.8 (45.8-51.5)	70.1 (67.2-73.9)	109 (97.1-125)	148 (137-162)	1450

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Molybdenum (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	42.9 (40.6-45.4)	43.2 (40.9-45.6)	61.6 (57.2-65.5)	89.5 (80.0-103)	115 (93.7-137)	780
	01-02	48.1 (44.3-52.2)	48.4 (44.8-52.3)	71.7 (66.4-76.0)	103 (90.0-120)	129 (109-155)	682
	03-04	43.5 (40.5-46.8)	43.5 (41.0-46.2)	62.8 (56.8-67.2)	85.9 (79.5-97.0)	112 (97.0-133)	618
	05-06	51.8 (49.9-53.8)	52.1 (49.7-54.7)	73.5 (69.5-77.4)	106 (99.5-111)	133 (112-151)	652
	07-08	53.3 (50.2-56.5)	51.9 (47.1-55.3)	77.9 (70.6-82.1)	113 (103-129)	151 (132-185)	515
	09-10	51.8 (48.9-54.9)	51.4 (48.3-54.8)	74.0 (68.7-78.8)	109 (92.7-125)	148 (125-173)	613
Non-Hispanic blacks	99-00	37.2 (33.4-41.6)	37.1 (33.0-41.2)	55.9 (49.6-63.3)	88.2 (69.1-112)	119 (88.3-141)	546
	01-02	36.5 (34.1-39.0)	37.5 (35.1-38.9)	57.1 (49.7-62.4)	78.3 (71.5-92.0)	109 (81.1-127)	667
	03-04	33.1 (30.5-35.9)	31.7 (30.1-34.7)	47.2 (43.7-52.1)	72.9 (64.6-78.4)	90.5 (78.4-118)	723
	05-06	34.9 (33.1-36.8)	35.4 (32.7-38.1)	53.5 (49.7-55.8)	81.1 (75.4-89.4)	102 (89.4-119)	692
	07-08	38.0 (34.8-41.4)	38.7 (34.2-43.0)	57.0 (52.7-60.2)	82.0 (73.2-92.4)	105 (92.0-118)	589
	09-10	36.3 (32.9-40.1)	37.2 (35.1-39.5)	54.7 (50.3-60.4)	85.2 (68.6-110)	121 (97.1-155)	544
Non-Hispanic whites	99-00	44.5 (40.2-49.2)	42.1 (38.8-47.3)	65.3 (58.9-71.3)	116 (101-126)	172 (131-195)	760
	01-02	42.5 (39.3-46.0)	41.9 (39.3-45.6)	61.2 (57.1-67.2)	104 (88.7-120)	138 (120-163)	1132
	03-04	39.1 (37.2-41.1)	39.3 (37.7-40.8)	58.1 (54.6-61.4)	87.4 (78.9-96.7)	118 (106-134)	1074
	05-06	44.5 (42.4-46.6)	43.9 (41.7-45.7)	65.0 (59.9-68.5)	97.3 (90.7-105)	132 (119-152)	1041
	07-08	46.7 (45.0-48.6)	46.1 (43.6-48.4)	72.4 (65.8-75.1)	103 (95.7-113)	135 (120-152)	1095
	09-10	45.3 (42.4-48.5)	44.2 (41.5-48.4)	66.6 (63.1-69.3)	101 (88.4-124)	141 (121-159)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Molybdenum (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	42.0 (40.4-43.6)	41.0 (38.6-44.4)	62.9 (61.2-65.5)	95.1 (90.9-101)	130 (118-148)	2502
	13-14	39.1 (37.3-41.1)	39.4 (37.5-41.0)	59.3 (57.1-62.2)	86.9 (83.7-92.5)	117 (108-125)	2663
Age group							
6-11 years	11-12	83.5 (76.1-91.6)	81.7 (74.3-91.2)	120 (110-129)	178 (146-240)	259 (185-300)	398
	13-14	77.0 (73.5-80.8)	73.5 (70.0-81.4)	106 (98.4-117)	153 (129-172)	184 (164-225)	402
12-19 years	11-12	44.4 (40.8-48.4)	43.7 (39.1-48.0)	62.0 (57.8-65.9)	90.4 (76.5-94.8)	109 (92.4-131)	390
	13-14	43.6 (40.3-47.2)	44.0 (39.1-47.3)	63.2 (59.9-70.8)	90.2 (74.7-107)	113 (95.9-140)	451
20 years and older	11-12	38.6 (37.1-40.2)	38.5 (36.1-41.0)	57.9 (53.9-61.2)	85.0 (79.5-89.3)	112 (102-123)	1714
	13-14	35.9 (33.7-38.2)	36.9 (35.1-38.4)	53.4 (50.4-57.1)	79.7 (73.4-83.7)	97.8 (88.5-111)	1810
Gender							
Males	11-12	39.8 (37.5-42.2)	40.0 (36.0-43.6)	59.5 (56.1-62.9)	88.2 (84.7-96.7)	118 (108-131)	1261
	13-14	37.9 (35.4-40.6)	38.0 (35.7-40.3)	58.7 (54.5-62.5)	87.7 (82.3-96.4)	119 (104-128)	1317
Females	11-12	44.2 (41.5-47.0)	43.3 (39.2-45.5)	67.1 (62.8-69.7)	102 (92.4-111)	149 (118-157)	1241
	13-14	40.4 (38.3-42.6)	40.5 (38.4-43.3)	60.6 (57.1-64.6)	86.8 (82.1-94.4)	116 (104-125)	1346
Race/ethnicity							
Mexican Americans	11-12	49.6 (43.1-57.1)	48.9 (43.0-56.0)	72.8 (63.6-85.3)	114 (85.7-149)	164 (114-224)	317
	13-14	46.7 (41.1-53.1)	45.7 (39.0-52.4)	66.9 (60.3-73.0)	103 (83.6-123)	136 (111-205)	453
Non-Hispanic blacks	11-12	34.5 (32.1-37.1)	34.0 (32.0-36.1)	52.4 (48.0-58.3)	80.7 (70.7-91.7)	104 (87.4-120)	669
	13-14	33.4 (32.1-34.7)	33.7 (31.4-36.6)	50.1 (46.7-52.9)	74.1 (64.2-81.3)	89.1 (80.9-110)	581
Non-Hispanic whites	11-12	40.8 (38.4-43.4)	40.0 (37.0-44.6)	61.3 (57.2-64.6)	91.6 (84.9-101)	118 (109-148)	818
	13-14	37.5 (35.0-40.2)	38.2 (36.1-40.7)	58.2 (53.4-62.8)	84.9 (79.7-91.9)	108 (97.2-119)	984
All Hispanics	11-12	48.5 (44.5-52.8)	48.7 (44.4-51.9)	71.5 (65.5-76.8)	105 (90.4-122)	146 (112-181)	573
	13-14	44.4 (40.7-48.6)	44.1 (38.8-48.1)	64.6 (60.3-69.7)	98.0 (85.4-108)	128 (112-160)	701
Asians	11-12	59.1 (54.2-64.5)	59.5 (51.6-65.2)	91.5 (81.6-102)	158 (137-174)	202 (163-248)	353
	13-14	56.4 (50.3-63.2)	51.8 (46.6-56.8)	85.1 (69.2-109)	165 (122-184)	197 (166-292)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Molybdenum_BiomonitoringSummary.html

Urinary Platinum (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2690
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	.009 (<LOD-.012)	.014 (.009-.025)	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	.009 (<LOD-.015)	.016 (.009-.049)	2847
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	.010 (<LOD-.011)	.014 (.010-.020)	355
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.011)	394
	09-10	*	< LOD	< LOD	.010 (<LOD-.014)	.015 (.009-.036)	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	.012 (.009-.019)	701
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.017)	376
	09-10	*	< LOD	< LOD	.010 (<LOD-.019)	.018 (<LOD-.078)	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1560
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	.009 (<LOD-.014)	.014 (.009-.032)	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	.009 (<LOD-.016)	.017 (.009-.049)	2018
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	< LOD	1335
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	.009 (<LOD-.012)	.012 (.009-.020)	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	.009 (<LOD-.015)	.016 (<LOD-.047)	1397
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	.010 (<LOD-.014)	.015 (.010-.033)	1305
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.009)	1300
	09-10	*	< LOD	< LOD	.010 (<LOD-.015)	.017 (.009-.051)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.009, 0.009, and 0.009 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html

Urinary Platinum (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	< LOD	683
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	.010 (<LOD-.014)	.014 (.009-.023)	652
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.010)	515
	09-10	*	< LOD	< LOD	< LOD	.010 (.009-.012)	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	.011 (.009-.016)	692
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.013)	589
	09-10	*	< LOD	< LOD	.012 (<LOD-.032)	.024 (.009-.103)	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	.009 (<LOD-.012)	.013 (.009-.026)	1041
	07-08	*	< LOD	< LOD	< LOD	.009 (<LOD-.009)	1095
	09-10	*	< LOD	< LOD	.009 (<LOD-.019)	.018 (<LOD-.073)	1224

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.07, 0.009, 0.009, and 0.009 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html

Urinary Platinum (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	2465
	01-02	*	< LOD	< LOD	< LOD	< LOD	2689
	03-04	*	< LOD	< LOD	< LOD	< LOD	2558
	05-06	*	< LOD	< LOD	.021 (<LOD-.023)	.029 (.026-.035)	2576
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	.023 (<LOD-.027)	.033 (.026-.046)	2847
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	< LOD	340
	01-02	*	< LOD	< LOD	< LOD	< LOD	368
	03-04	*	< LOD	< LOD	< LOD	< LOD	290
	05-06	*	< LOD	< LOD	.020 (<LOD-.027)	.030 (.021-.050)	355
	07-08	*	< LOD	< LOD	< LOD	.026 (<LOD-.032)	394
	09-10	*	< LOD	< LOD	.026 (<LOD-.030)	.043 (.027-.050)	378
12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	719
	01-02	*	< LOD	< LOD	< LOD	< LOD	762
	03-04	*	< LOD	< LOD	< LOD	< LOD	725
	05-06	*	< LOD	< LOD	< LOD	.017 (.012-.026)	701
	07-08	*	< LOD	< LOD	< LOD	.017 (<LOD-.025)	376
	09-10	*	< LOD	< LOD	.021 (<LOD-.029)	.032 (<LOD-.050)	451
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1406
	01-02	*	< LOD	< LOD	< LOD	< LOD	1559
	03-04	*	< LOD	< LOD	< LOD	< LOD	1543
	05-06	*	< LOD	< LOD	.022 (<LOD-.025)	.030 (.026-.035)	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1857
	09-10	*	< LOD	< LOD	.023 (<LOD-.030)	.035 (.024-.050)	2018
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	< LOD	1227
	01-02	*	< LOD	< LOD	< LOD	< LOD	1334
	03-04	*	< LOD	< LOD	< LOD	< LOD	1281
	05-06	*	< LOD	< LOD	.014 (<LOD-.016)	.021 (.016-.025)	1271
	07-08	*	< LOD	< LOD	< LOD	< LOD	1327
	09-10	*	< LOD	< LOD	.019 (<LOD-.025)	.027 (<LOD-.036)	1397
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	1238
	01-02	*	< LOD	< LOD	< LOD	< LOD	1355
	03-04	*	< LOD	< LOD	< LOD	< LOD	1277
	05-06	*	< LOD	< LOD	.026 (<LOD-.030)	.033 (.029-.050)	1305
	07-08	*	< LOD	< LOD	< LOD	.033 (<LOD-.043)	1300
	09-10	*	< LOD	< LOD	.027 (<LOD-.032)	.038 (.030-.054)	1450

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html

Urinary Platinum (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	884
	01-02	*	< LOD	< LOD	< LOD	< LOD	682
	03-04	*	< LOD	< LOD	< LOD	< LOD	618
	05-06	*	< LOD	< LOD	.016 (<LOD-.019)	.023 (.017-.032)	652
	07-08	*	< LOD	< LOD	< LOD	.025 (<LOD-.033)	515
	09-10	*	< LOD	< LOD	< LOD	.025 (.021-.029)	613
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	568
	01-02	*	< LOD	< LOD	< LOD	< LOD	667
	03-04	*	< LOD	< LOD	< LOD	< LOD	723
	05-06	*	< LOD	< LOD	< LOD	.018 (.014-.022)	692
	07-08	*	< LOD	< LOD	< LOD	.017 (<LOD-.021)	589
	09-10	*	< LOD	< LOD	.017 (<LOD-.024)	.027 (.019-.050)	544
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	822
	01-02	*	< LOD	< LOD	< LOD	< LOD	1132
	03-04	*	< LOD	< LOD	< LOD	< LOD	1074
	05-06	*	< LOD	< LOD	.023 (<LOD-.025)	.030 (.027-.035)	1041
	07-08	*	< LOD	< LOD	< LOD	.030 (<LOD-.038)	1095
	09-10	*	< LOD	< LOD	.025 (<LOD-.032)	.036 (<LOD-.058)	1224

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Platinum_BiomonitoringSummary.html

Blood Selenium (2011 – 2016)

Geometric mean and selected percentiles of blood concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	190 (187-193)	190 (187-193)	206 (203-210)	223 (219-228)	236 (231-241)	7920
	13-14	193 (191-195)	193 (190-195)	208 (205-210)	223 (220-228)	235 (232-239)	5215
	15-16	191 (187-195)	191 (187-195)	206 (202-210)	223 (218-226)	233 (227-242)	4987
Age group							
1-5 years	11-12	167 (164-171)	167 (163-172)	181 (175-187)	196 (187-201)	201 (197-207)	713
	13-14	168 (166-171)	169 (166-172)	180 (177-183)	192 (187-197)	201 (196-205)	818
	15-16	167 (163-170)	167 (164-170)	179 (175-183)	190 (186-194)	198 (191-206)	790
6-11 years	11-12	176 (172-180)	177 (172-181)	189 (185-193)	201 (197-206)	208 (205-215)	1048
	13-14	180 (177-183)	180 (176-183)	191 (187-195)	204 (198-210)	212 (205-218)	1075
	15-16	177 (174-180)	177 (174-181)	190 (186-194)	201 (196-205)	209 (201-213)	1023
12-19 years	11-12	189 (184-193)	189 (182-194)	206 (198-211)	220 (212-231)	232 (221-245)	1129
	13-14	191 (188-194)	192 (188-194)	204 (200-208)	218 (212-222)	224 (220-231)	627
	15-16	192 (188-196)	192 (188-195)	207 (202-210)	221 (215-227)	228 (221-235)	565
20 years and older	11-12	193 (190-196)	193 (190-196)	209 (205-213)	227 (222-231)	238 (233-243)	5030
	13-14	196 (194-198)	196 (193-198)	210 (207-213)	227 (222-232)	238 (235-242)	2695
	15-16	194 (190-198)	193 (189-198)	208 (203-212)	224 (219-230)	237 (230-243)	2609
Gender							
Males	11-12	192 (189-195)	192 (188-195)	208 (204-213)	227 (221-232)	238 (232-243)	3968
	13-14	195 (192-197)	195 (193-197)	209 (206-213)	225 (220-231)	235 (230-242)	2587
	15-16	193 (189-196)	193 (190-196)	207 (203-211)	224 (218-229)	235 (227-244)	2488
Females	11-12	188 (185-191)	188 (186-191)	204 (201-207)	220 (218-224)	233 (227-240)	3952
	13-14	191 (189-193)	190 (187-193)	205 (202-208)	222 (218-225)	235 (231-238)	2628
	15-16	189 (185-193)	189 (184-194)	205 (201-209)	221 (214-226)	232 (225-240)	2499
Race/ethnicity							
Mexican Americans	11-12	189 (184-194)	189 (183-195)	205 (200-209)	220 (217-223)	229 (224-233)	1077
	13-14	191 (188-195)	192 (186-197)	206 (201-210)	221 (214-228)	232 (223-234)	969
	15-16	189 (183-195)	189 (183-197)	204 (198-213)	219 (213-225)	228 (220-237)	994
Non-Hispanic blacks	11-12	184 (181-187)	183 (180-187)	199 (196-202)	216 (211-220)	226 (220-233)	2195
	13-14	190 (187-193)	190 (187-193)	204 (201-209)	222 (219-225)	232 (225-238)	1119
	15-16	187 (183-190)	185 (181-190)	201 (196-205)	217 (212-221)	228 (221-235)	1070
Non-Hispanic whites	11-12	192 (188-196)	192 (188-196)	208 (204-213)	227 (220-232)	238 (231-245)	2493
	13-14	194 (191-196)	194 (191-196)	208 (204-211)	224 (219-230)	236 (232-240)	1848
	15-16	193 (189-197)	193 (189-198)	207 (203-211)	224 (218-228)	234 (227-242)	1510
All Hispanics	11-12	187 (183-191)	188 (183-192)	203 (198-208)	218 (214-222)	228 (223-234)	1931
	13-14	191 (189-194)	192 (187-196)	206 (203-209)	222 (217-225)	231 (227-234)	1481
	15-16	187 (182-191)	187 (183-192)	202 (197-209)	217 (211-222)	227 (220-234)	1664
Asians	11-12	193 (189-197)	192 (188-196)	210 (204-215)	227 (223-235)	243 (233-253)	1005
	13-14	196 (192-201)	194 (189-200)	212 (206-221)	234 (224-245)	251 (237-264)	510
	15-16	194 (188-200)	194 (188-199)	210 (201-217)	229 (219-242)	246 (234-269)	479

Limit of detection (LOD, see Data Analysis section) for Survey years 11-12, 13-14, and 15-16 are 30.0, 24.5, and 24.5 respectively.
 < LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Serum Selenium (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	127 (125-130)	127 (124-130)	139 (136-142)	151 (148-155)	161 (156-164)	2329
	13-14	128 (126-130)	127 (126-130)	139 (137-142)	151 (149-153)	159 (156-161)	2519
Age group							
6-11 years	11-12	117 (115-119)	118 (115-120)	128 (124-130)	133 (132-136)	138 (135-140)	316
	13-14	118 (115-120)	117 (114-121)	127 (123-131)	135 (130-142)	142 (136-144)	339
12-19 years	11-12	125 (122-128)	124 (121-127)	136 (130-139)	145 (139-153)	154 (143-178)	366
	13-14	124 (121-127)	123 (120-126)	134 (128-141)	146 (139-151)	151 (144-157)	418
20 years and older	11-12	129 (126-132)	129 (125-132)	141 (138-144)	153 (149-157)	163 (158-166)	1647
	13-14	129 (127-131)	129 (127-131)	141 (138-144)	153 (151-154)	161 (157-162)	1762
Gender							
Males	11-12	129 (127-132)	129 (126-132)	142 (138-145)	153 (147-162)	163 (155-167)	1162
	13-14	130 (128-132)	130 (127-132)	144 (141-146)	153 (151-156)	161 (157-162)	1235
Females	11-12	125 (123-128)	125 (122-129)	137 (134-141)	149 (145-154)	158 (151-166)	1167
	13-14	125 (124-127)	126 (123-128)	136 (134-139)	147 (145-149)	154 (152-159)	1284
Race/ethnicity							
Mexican Americans	11-12	126 (124-128)	124 (122-127)	137 (134-140)	151 (142-157)	157 (153-163)	285
	13-14	129 (125-134)	128 (124-135)	140 (136-146)	153 (147-159)	159 (152-165)	431
Non-Hispanic blacks	11-12	122 (120-124)	122 (119-124)	132 (130-134)	143 (139-145)	149 (145-157)	620
	13-14	124 (122-127)	124 (122-127)	135 (131-138)	147 (140-152)	153 (150-160)	516
Non-Hispanic whites	11-12	129 (126-133)	129 (125-133)	142 (138-145)	154 (149-158)	163 (158-167)	780
	13-14	128 (125-130)	128 (125-130)	140 (136-143)	151 (148-153)	158 (154-161)	975
All Hispanics	11-12	125 (123-126)	123 (122-125)	135 (131-140)	149 (144-153)	157 (151-163)	525
	13-14	129 (126-132)	129 (125-134)	141 (138-145)	153 (148-156)	159 (155-163)	666
Asians	11-12	126 (123-129)	124 (120-128)	137 (135-140)	152 (143-158)	158 (152-171)	323
	13-14	130 (126-134)	129 (124-133)	142 (137-147)	159 (151-170)	172 (159-182)	267

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 4.5 and 4.5, respectively.

Urinary Strontium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	85.8 (80.8-91.1)	90.5 (82.6-98.2)	167 (156-176)	249 (229-269)	321 (288-352)	2503
	13-14	81.2 (77.6-85.1)	88.1 (83.3-92.7)	151 (142-157)	231 (216-244)	299 (267-342)	2664
Age group							
6-11 years	11-12	81.9 (69.7-96.2)	91.7 (72.8-106)	179 (135-226)	285 (236-319)	349 (265-466)	399
	13-14	66.6 (58.6-75.6)	77.8 (67.4-89.2)	133 (119-150)	195 (156-230)	232 (198-255)	402
12-19 years	11-12	96.8 (82.3-114)	101 (86.4-128)	185 (160-215)	296 (226-348)	350 (274-426)	390
	13-14	98.1 (85.0-113)	117 (96.6-138)	184 (173-199)	285 (245-311)	369 (294-383)	451
20 years and older	11-12	84.6 (79.5-90.1)	87.8 (79.9-95.5)	160 (154-171)	239 (222-262)	307 (271-346)	1714
	13-14	80.7 (76.3-85.3)	86.0 (81.3-90.6)	145 (134-154)	226 (209-244)	298 (260-348)	1811
Gender							
Males	11-12	95.8 (88.7-103)	102 (95.6-114)	172 (157-189)	255 (215-291)	307 (277-358)	1262
	13-14	87.8 (82.5-93.4)	94.8 (88.0-102)	158 (147-176)	235 (219-256)	312 (273-344)	1318
Females	11-12	77.2 (71.5-83.4)	78.3 (72.4-85.2)	156 (140-173)	243 (221-270)	331 (276-355)	1241
	13-14	75.4 (71.0-80.1)	79.2 (75.8-84.5)	141 (130-151)	221 (190-251)	286 (253-368)	1346
Race/ethnicity							
Mexican Americans	11-12	85.8 (76.0-96.8)	89.4 (76.1-103)	189 (165-200)	258 (228-266)	302 (260-345)	317
	13-14	93.0 (80.8-107)	97.0 (83.7-111)	165 (144-201)	248 (209-328)	339 (254-443)	453
Non-Hispanic blacks	11-12	74.9 (68.0-82.4)	82.8 (75.8-91.3)	143 (132-160)	221 (194-239)	269 (239-298)	669
	13-14	73.8 (68.7-79.2)	82.0 (77.1-92.4)	132 (123-147)	213 (178-235)	255 (232-292)	581
Non-Hispanic whites	11-12	87.2 (80.4-94.6)	91.1 (81.0-100)	169 (154-180)	256 (214-296)	343 (278-391)	819
	13-14	79.8 (75.0-84.8)	85.6 (79.9-92.3)	149 (137-157)	223 (206-251)	298 (254-363)	985
All Hispanics	11-12	85.6 (74.8-98.0)	89.4 (77.8-108)	170 (151-198)	246 (221-262)	289 (260-325)	573
	13-14	90.3 (80.5-101)	97.0 (87.0-106)	164 (149-189)	246 (223-278)	326 (255-390)	701
Asians	11-12	97.0 (85.7-110)	98.4 (84.8-121)	187 (161-206)	280 (239-303)	343 (288-384)	353
	13-14	85.5 (72.5-101)	93.0 (80.1-105)	159 (132-189)	290 (189-383)	372 (241-534)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.5 and 2.34.

Urinary Strontium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	97.2 (90.1-105)	99.7 (91.4-110)	156 (143-174)	240 (221-258)	320 (287-341)	2501
	13-14	93.9 (88.6-99.5)	100 (93.2-105)	150 (142-158)	225 (194-254)	287 (255-324)	2663
Age group							
6-11 years	11-12	118 (104-133)	124 (105-150)	222 (185-245)	288 (271-338)	354 (299-507)	398
	13-14	99.3 (84.0-117)	113 (87.2-136)	181 (151-224)	254 (224-303)	303 (255-316)	402
12-19 years	11-12	92.6 (79.6-108)	95.3 (73.9-119)	150 (122-172)	221 (175-248)	279 (228-320)	390
	13-14	88.8 (83.7-94.2)	94.9 (88.0-104)	141 (129-151)	203 (181-227)	232 (207-270)	451
20 years and older	11-12	95.9 (89.0-103)	98.6 (91.0-109)	155 (140-171)	233 (213-255)	315 (278-346)	1713
	13-14	94.1 (88.5-100)	100 (92.4-105)	148 (140-157)	223 (193-256)	294 (255-339)	1810
Gender							
Males	11-12	89.5 (82.2-97.5)	91.8 (86.2-101)	142 (130-159)	210 (190-237)	275 (239-314)	1261
	13-14	87.9 (83.7-92.2)	93.4 (87.8-100)	139 (130-150)	199 (181-228)	253 (207-294)	1317
Females	11-12	105 (96.6-114)	110 (98.5-117)	178 (152-203)	261 (237-313)	346 (315-371)	1240
	13-14	100 (92.5-108)	105 (95.4-113)	159 (150-171)	244 (216-288)	325 (278-390)	1346
Race/ethnicity							
Mexican Americans	11-12	96.5 (88.0-106)	103 (90.3-113)	152 (137-181)	233 (200-274)	283 (258-316)	317
	13-14	106 (90.8-124)	106 (93.0-125)	173 (140-209)	255 (198-303)	295 (249-402)	453
Non-Hispanic blacks	11-12	58.2 (53.8-63.0)	64.7 (60.3-68.3)	97.8 (89.3-108)	143 (130-160)	172 (149-216)	669
	13-14	56.1 (51.9-60.7)	60.4 (55.3-65.1)	91.7 (82.6-104)	135 (125-160)	187 (150-220)	581
Non-Hispanic whites	11-12	105 (94.3-118)	109 (95.1-118)	168 (148-200)	255 (235-295)	341 (313-367)	817
	13-14	98.5 (93.0-104)	104 (97.7-110)	150 (142-159)	223 (193-255)	286 (251-314)	984
All Hispanics	11-12	95.8 (87.5-105)	102 (92.4-112)	150 (136-172)	213 (195-240)	274 (222-315)	573
	13-14	101 (86.9-117)	103 (89.4-122)	163 (136-198)	248 (195-291)	293 (237-402)	701
Asians	11-12	130 (120-141)	132 (117-142)	197 (179-217)	295 (246-336)	405 (314-474)	353
	13-14	134 (121-148)	141 (120-156)	216 (182-265)	349 (274-395)	431 (359-457)	292

Urinary Thallium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.176 (.162-.192)	.200 (.180-.220)	.290 (.270-.330)	.400 (.370-.420)	.450 (.430-.480)	2413
	01-02	.165 (.154-.177)	.190 (.180-.200)	.280 (.260-.290)	.370 (.350-.390)	.440 (.410-.470)	2653
	03-04	.155 (.145-.165)	.170 (.160-.180)	.270 (.250-.290)	.370 (.340-.400)	.440 (.410-.490)	2558
	05-06	.158 (.151-.165)	.180 (.170-.190)	.270 (.260-.280)	.360 (.350-.390)	.430 (.410-.460)	2576
	07-08	.146 (.139-.153)	.160 (.150-.170)	.250 (.230-.260)	.330 (.320-.360)	.400 (.390-.420)	2627
	09-10	.144 (.137-.152)	.160 (.150-.170)	.240 (.230-.250)	.340 (.310-.360)	.410 (.380-.440)	2848
Age group 6-11 years	99-00	.201 (.167-.243)	.210 (.150-.280)	.310 (.250-.350)	.410 (.330-.450)	.450 (.350-.590)	336
	01-02	.172 (.147-.202)	.200 (.160-.220)	.290 (.230-.330)	.350 (.340-.370)	.390 (.360-.430)	362
	03-04	.191 (.170-.215)	.190 (.170-.230)	.300 (.250-.370)	.430 (.360-.500)	.510 (.430-.690)	290
	05-06	.174 (.158-.192)	.190 (.170-.210)	.280 (.250-.300)	.380 (.320-.430)	.430 (.400-.480)	355
	07-08	.166 (.150-.185)	.170 (.150-.200)	.250 (.230-.270)	.350 (.310-.410)	.420 (.360-.470)	394
	09-10	.161 (.147-.176)	.170 (.150-.200)	.280 (.230-.310)	.360 (.330-.410)	.440 (.400-.460)	378
12-19 years	99-00	.202 (.181-.225)	.220 (.200-.240)	.300 (.270-.340)	.410 (.390-.430)	.470 (.430-.510)	697
	01-02	.200 (.182-.220)	.220 (.190-.250)	.310 (.290-.320)	.370 (.350-.420)	.470 (.400-.500)	746
	03-04	.201 (.185-.218)	.220 (.210-.240)	.310 (.290-.320)	.410 (.360-.470)	.500 (.420-.560)	725
	05-06	.182 (.165-.200)	.210 (.190-.230)	.290 (.270-.310)	.370 (.350-.400)	.430 (.390-.480)	701
	07-08	.172 (.155-.190)	.180 (.160-.210)	.270 (.230-.300)	.330 (.310-.350)	.390 (.340-.420)	376
	09-10	.150 (.137-.163)	.160 (.150-.180)	.250 (.240-.270)	.340 (.290-.380)	.400 (.350-.430)	451
20 years and older	99-00	.170 (.157-.183)	.190 (.180-.210)	.290 (.260-.320)	.400 (.370-.420)	.450 (.420-.480)	1380
	01-02	.159 (.147-.173)	.190 (.170-.200)	.270 (.250-.290)	.380 (.350-.400)	.440 (.410-.490)	1545
	03-04	.145 (.134-.156)	.160 (.150-.170)	.250 (.240-.270)	.360 (.330-.390)	.420 (.390-.460)	1543
	05-06	.152 (.144-.161)	.170 (.160-.180)	.260 (.240-.270)	.360 (.340-.390)	.440 (.400-.470)	1520
	07-08	.140 (.133-.148)	.150 (.140-.160)	.240 (.230-.250)	.330 (.310-.360)	.400 (.380-.440)	1857
	09-10	.142 (.133-.150)	.160 (.150-.170)	.240 (.220-.250)	.330 (.310-.360)	.410 (.370-.440)	2019
Gender Males	99-00	.197 (.179-.217)	.220 (.200-.240)	.320 (.280-.350)	.400 (.370-.440)	.450 (.420-.520)	1200
	01-02	.184 (.173-.196)	.210 (.200-.230)	.290 (.280-.300)	.380 (.360-.400)	.430 (.400-.470)	1313
	03-04	.167 (.156-.178)	.190 (.180-.200)	.280 (.260-.300)	.370 (.340-.400)	.430 (.400-.480)	1281
	05-06	.171 (.163-.179)	.190 (.180-.200)	.270 (.260-.280)	.370 (.360-.390)	.430 (.410-.470)	1271
	07-08	.154 (.148-.161)	.170 (.160-.180)	.250 (.240-.270)	.340 (.320-.360)	.390 (.380-.440)	1327
	09-10	.152 (.140-.164)	.170 (.150-.180)	.250 (.240-.270)	.330 (.310-.360)	.410 (.360-.440)	1398
Females	99-00	.159 (.145-.175)	.180 (.150-.200)	.270 (.250-.300)	.390 (.350-.420)	.460 (.410-.490)	1213
	01-02	.149 (.137-.163)	.160 (.150-.180)	.260 (.230-.290)	.370 (.330-.400)	.440 (.400-.500)	1340
	03-04	.144 (.133-.156)	.160 (.140-.170)	.250 (.230-.280)	.370 (.330-.410)	.450 (.410-.510)	1277
	05-06	.146 (.138-.155)	.160 (.150-.180)	.260 (.240-.270)	.360 (.350-.380)	.440 (.400-.460)	1305
	07-08	.139 (.129-.148)	.150 (.130-.160)	.240 (.220-.260)	.330 (.300-.390)	.410 (.380-.430)	1300
	09-10	.137 (.129-.146)	.150 (.140-.160)	.230 (.210-.250)	.340 (.310-.360)	.410 (.380-.450)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, 0.015, 0.015, and 0.015 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html

Factsheet

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Urinary Thallium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.172 (.150-.196)	.200 (.160-.230)	.270 (.250-.300)	.370 (.320-.420)	.450 (.370-.520)	861
	01-02	.160 (.148-.173)	.180 (.160-.200)	.260 (.240-.270)	.340 (.310-.360)	.400 (.350-.440)	675
	03-04	.171 (.160-.183)	.200 (.170-.220)	.280 (.260-.310)	.360 (.340-.420)	.450 (.390-.480)	618
	05-06	.158 (.149-.167)	.180 (.170-.190)	.250 (.240-.270)	.330 (.300-.360)	.400 (.360-.440)	652
	07-08	.151 (.140-.164)	.170 (.150-.180)	.250 (.220-.270)	.330 (.310-.360)	.380 (.350-.390)	515
	09-10	.147 (.139-.155)	.160 (.150-.180)	.240 (.210-.260)	.310 (.290-.320)	.390 (.320-.430)	613
Non-Hispanic blacks	99-00	.217 (.197-.239)	.230 (.220-.260)	.350 (.300-.390)	.450 (.400-.520)	.550 (.460-.630)	561
	01-02	.202 (.187-.218)	.220 (.200-.230)	.300 (.270-.340)	.410 (.380-.440)	.520 (.440-.590)	657
	03-04	.185 (.167-.206)	.190 (.170-.220)	.290 (.250-.330)	.410 (.330-.490)	.490 (.410-.640)	723
	05-06	.188 (.169-.210)	.210 (.180-.230)	.300 (.270-.320)	.390 (.360-.440)	.500 (.430-.530)	692
	07-08	.171 (.160-.182)	.180 (.170-.190)	.270 (.250-.290)	.350 (.330-.390)	.430 (.390-.460)	589
	09-10	.162 (.148-.177)	.180 (.160-.200)	.270 (.250-.280)	.350 (.330-.400)	.450 (.390-.510)	544
Non-Hispanic whites	99-00	.170 (.153-.188)	.200 (.170-.220)	.290 (.260-.330)	.400 (.360-.420)	.450 (.420-.480)	801
	01-02	.159 (.147-.172)	.180 (.170-.200)	.270 (.250-.290)	.360 (.330-.390)	.430 (.390-.460)	1114
	03-04	.146 (.135-.158)	.160 (.150-.170)	.260 (.240-.280)	.360 (.330-.380)	.410 (.380-.460)	1074
	05-06	.150 (.140-.160)	.170 (.160-.180)	.260 (.240-.270)	.350 (.320-.380)	.420 (.390-.450)	1041
	07-08	.138 (.130-.147)	.150 (.130-.160)	.240 (.220-.260)	.320 (.300-.360)	.390 (.350-.440)	1095
	09-10	.139 (.130-.149)	.150 (.140-.170)	.240 (.210-.250)	.330 (.300-.360)	.400 (.360-.430)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, 0.015, 0.015, and 0.015 respectively.

Biomonitoring Summary

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Factsheet

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Urinary Thallium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.149 (.138-.160)	.157 (.144-.169)	.255 (.232-.278)	.361 (.334-.377)	.434 (.379-.521)	2504
	13-14	.141 (.132-.150)	.154 (.139-.163)	.248 (.228-.266)	.349 (.338-.370)	.421 (.414-.438)	2664
Age group							
6-11 years	11-12	.157 (.143-.172)	.157 (.136-.195)	.272 (.232-.308)	.365 (.330-.474)	.509 (.372-.629)	399
	13-14	.149 (.131-.170)	.163 (.146-.173)	.259 (.221-.282)	.364 (.331-.400)	.438 (.367-.577)	402
12-19 years	11-12	.155 (.131-.184)	.169 (.141-.196)	.288 (.240-.301)	.376 (.320-.403)	.447 (.387-.545)	390
	13-14	.160 (.136-.188)	.170 (.154-.191)	.274 (.224-.334)	.400 (.324-.507)	.495 (.384-.562)	451
20 years and older	11-12	.147 (.136-.159)	.155 (.142-.167)	.247 (.223-.274)	.356 (.324-.377)	.431 (.375-.520)	1715
	13-14	.137 (.129-.146)	.150 (.136-.161)	.241 (.222-.262)	.340 (.326-.364)	.417 (.398-.426)	1811
Gender							
Males	11-12	.165 (.150-.181)	.173 (.151-.195)	.272 (.239-.301)	.369 (.343-.387)	.431 (.381-.524)	1262
	13-14	.147 (.136-.159)	.161 (.151-.171)	.258 (.231-.274)	.356 (.325-.381)	.422 (.400-.455)	1318
Females	11-12	.135 (.122-.148)	.141 (.131-.155)	.237 (.208-.260)	.348 (.304-.376)	.434 (.367-.522)	1242
	13-14	.135 (.125-.145)	.143 (.127-.160)	.241 (.214-.262)	.348 (.328-.373)	.421 (.398-.443)	1346
Race/ethnicity							
Mexican Americans	11-12	.142 (.135-.150)	.162 (.143-.174)	.231 (.210-.248)	.298 (.268-.321)	.344 (.306-.381)	317
	13-14	.139 (.127-.154)	.157 (.137-.175)	.247 (.206-.274)	.324 (.285-.387)	.414 (.324-.511)	453
Non-Hispanic blacks	11-12	.176 (.150-.206)	.184 (.158-.214)	.294 (.244-.364)	.431 (.370-.503)	.524 (.429-.657)	669
	13-14	.172 (.156-.189)	.190 (.170-.213)	.271 (.241-.301)	.356 (.325-.380)	.415 (.375-.433)	581
Non-Hispanic whites	11-12	.143 (.133-.155)	.149 (.135-.166)	.245 (.218-.277)	.353 (.322-.372)	.412 (.367-.522)	820
	13-14	.132 (.120-.145)	.139 (.121-.161)	.235 (.203-.265)	.340 (.318-.370)	.419 (.392-.440)	985
All Hispanics	11-12	.145 (.134-.157)	.158 (.148-.169)	.237 (.219-.257)	.305 (.289-.340)	.381 (.326-.438)	573
	13-14	.144 (.130-.160)	.160 (.138-.178)	.251 (.220-.272)	.340 (.291-.382)	.417 (.365-.473)	701
Asians	11-12	.177 (.160-.197)	.183 (.163-.214)	.292 (.255-.319)	.417 (.372-.489)	.541 (.431-.664)	353
	13-14	.154 (.140-.169)	.159 (.134-.184)	.268 (.239-.310)	.414 (.368-.438)	.502 (.421-.662)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.02 and 0.018.

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Urinary Thallium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.166 (.159-.173)	.168 (.162-.176)	.224 (.217-.233)	.297 (.273-.319)	.366 (.338-.387)	2413
	01-02	.156 (.151-.162)	.156 (.148-.164)	.215 (.208-.222)	.287 (.278-.300)	.349 (.337-.365)	2652
	03-04	.154 (.149-.158)	.153 (.146-.160)	.214 (.203-.222)	.286 (.274-.304)	.350 (.328-.369)	2558
	05-06	.155 (.149-.162)	.150 (.140-.160)	.210 (.200-.220)	.300 (.290-.320)	.370 (.350-.390)	2576
	07-08	.152 (.147-.158)	.150 (.140-.160)	.210 (.200-.220)	.290 (.280-.310)	.370 (.350-.380)	2627
	09-10	.153 (.145-.162)	.150 (.140-.160)	.220 (.200-.230)	.300 (.280-.320)	.370 (.350-.400)	2848
Age group 6-11 years	99-00	.221 (.197-.248)	.222 (.196-.236)	.297 (.229-.356)	.375 (.318-.469)	.424 (.356-.600)	336
	01-02	.211 (.198-.226)	.207 (.198-.221)	.286 (.260-.321)	.370 (.333-.402)	.412 (.389-.456)	362
	03-04	.223 (.208-.238)	.216 (.198-.229)	.306 (.280-.346)	.412 (.346-.458)	.458 (.400-.532)	290
	05-06	.215 (.200-.231)	.210 (.190-.250)	.310 (.270-.320)	.360 (.320-.410)	.430 (.360-.510)	355
	07-08	.217 (.201-.234)	.220 (.210-.240)	.310 (.270-.340)	.410 (.370-.440)	.470 (.410-.540)	394
	09-10	.219 (.199-.241)	.220 (.200-.260)	.300 (.280-.340)	.400 (.350-.440)	.500 (.390-.600)	378
12-19 years	99-00	.153 (.146-.160)	.154 (.146-.162)	.205 (.191-.219)	.258 (.231-.278)	.321 (.265-.364)	697
	01-02	.143 (.137-.150)	.145 (.135-.152)	.196 (.184-.207)	.272 (.250-.289)	.312 (.299-.333)	746
	03-04	.143 (.135-.152)	.146 (.131-.155)	.194 (.179-.208)	.254 (.234-.280)	.304 (.271-.327)	725
	05-06	.140 (.133-.147)	.140 (.130-.150)	.190 (.170-.200)	.240 (.220-.270)	.290 (.250-.310)	701
	07-08	.134 (.124-.145)	.140 (.120-.150)	.190 (.180-.220)	.260 (.220-.300)	.300 (.250-.370)	376
	09-10	.140 (.127-.155)	.140 (.120-.160)	.190 (.170-.220)	.260 (.220-.310)	.310 (.260-.370)	451
20 years and older	99-00	.162 (.153-.171)	.167 (.155-.176)	.218 (.207-.230)	.286 (.271-.300)	.364 (.325-.389)	1380
	01-02	.153 (.147-.159)	.153 (.144-.161)	.210 (.200-.217)	.278 (.263-.293)	.343 (.313-.362)	1544
	03-04	.148 (.144-.153)	.149 (.141-.156)	.206 (.192-.215)	.273 (.258-.289)	.333 (.306-.353)	1543
	05-06	.152 (.145-.159)	.150 (.140-.160)	.210 (.200-.210)	.290 (.270-.310)	.370 (.350-.400)	1520
	07-08	.149 (.143-.156)	.150 (.140-.160)	.210 (.200-.220)	.280 (.270-.300)	.350 (.330-.380)	1857
	09-10	.150 (.142-.157)	.150 (.140-.160)	.210 (.200-.220)	.290 (.270-.320)	.370 (.330-.400)	2019
Gender Males	99-00	.154 (.147-.161)	.156 (.149-.164)	.202 (.192-.214)	.269 (.254-.297)	.338 (.300-.364)	1200
	01-02	.146 (.140-.153)	.148 (.142-.157)	.192 (.184-.204)	.260 (.246-.278)	.307 (.291-.342)	1312
	03-04	.140 (.135-.146)	.142 (.134-.149)	.188 (.180-.198)	.264 (.235-.286)	.317 (.287-.350)	1281
	05-06	.140 (.134-.147)	.140 (.130-.140)	.190 (.180-.200)	.270 (.240-.300)	.320 (.300-.340)	1271
	07-08	.138 (.131-.145)	.130 (.130-.140)	.190 (.180-.210)	.270 (.250-.290)	.330 (.300-.360)	1327
	09-10	.138 (.129-.148)	.130 (.130-.150)	.190 (.170-.210)	.270 (.240-.300)	.330 (.290-.360)	1398
Females	99-00	.178 (.167-.189)	.182 (.169-.197)	.244 (.226-.259)	.317 (.281-.366)	.380 (.333-.462)	1213
	01-02	.167 (.158-.176)	.167 (.153-.180)	.233 (.217-.250)	.313 (.282-.348)	.378 (.348-.402)	1340
	03-04	.167 (.162-.173)	.166 (.157-.177)	.235 (.222-.243)	.313 (.286-.333)	.368 (.340-.412)	1277
	05-06	.171 (.162-.181)	.170 (.160-.180)	.230 (.220-.250)	.330 (.300-.360)	.430 (.370-.490)	1305
	07-08	.167 (.163-.173)	.170 (.160-.180)	.230 (.230-.240)	.320 (.300-.340)	.390 (.360-.430)	1300
	09-10	.170 (.161-.178)	.170 (.160-.180)	.230 (.220-.250)	.340 (.310-.370)	.420 (.370-.470)	1450

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Urinary Thallium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.158 (.147-.170)	.160 (.148-.176)	.213 (.200-.237)	.282 (.266-.304)	.343 (.306-.389)	861
	01-02	.156 (.145-.169)	.155 (.145-.167)	.204 (.191-.221)	.286 (.250-.317)	.361 (.301-.424)	674
	03-04	.159 (.148-.170)	.157 (.143-.172)	.211 (.187-.241)	.293 (.273-.324)	.369 (.326-.422)	618
	05-06	.149 (.139-.158)	.150 (.140-.160)	.200 (.180-.210)	.270 (.240-.290)	.320 (.280-.370)	652
	07-08	.151 (.143-.160)	.160 (.130-.170)	.200 (.190-.220)	.270 (.250-.280)	.320 (.290-.370)	515
	09-10	.154 (.141-.167)	.150 (.140-.170)	.210 (.180-.230)	.280 (.250-.330)	.360 (.310-.430)	613
Non-Hispanic blacks	99-00	.142 (.133-.152)	.140 (.129-.151)	.200 (.184-.214)	.278 (.244-.307)	.383 (.286-.462)	561
	01-02	.138 (.128-.150)	.136 (.125-.146)	.194 (.170-.212)	.256 (.238-.278)	.328 (.271-.387)	657
	03-04	.133 (.122-.145)	.128 (.119-.143)	.185 (.171-.200)	.255 (.237-.269)	.323 (.267-.377)	723
	05-06	.137 (.128-.145)	.130 (.130-.140)	.190 (.180-.200)	.240 (.220-.290)	.320 (.270-.370)	692
	07-08	.125 (.118-.132)	.130 (.120-.130)	.170 (.160-.180)	.230 (.210-.260)	.280 (.250-.330)	589
	09-10	.128 (.120-.137)	.120 (.110-.130)	.180 (.160-.210)	.250 (.230-.280)	.310 (.270-.350)	544
Non-Hispanic whites	99-00	.169 (.160-.179)	.173 (.167-.181)	.227 (.215-.240)	.300 (.272-.329)	.364 (.333-.377)	801
	01-02	.161 (.155-.167)	.161 (.153-.171)	.222 (.214-.231)	.292 (.278-.304)	.348 (.330-.383)	1114
	03-04	.154 (.148-.160)	.153 (.143-.162)	.214 (.200-.223)	.283 (.271-.304)	.333 (.313-.363)	1074
	05-06	.156 (.148-.164)	.150 (.140-.160)	.210 (.200-.230)	.300 (.280-.320)	.360 (.330-.400)	1041
	07-08	.154 (.146-.164)	.160 (.140-.170)	.220 (.210-.230)	.300 (.280-.320)	.370 (.340-.390)	1095
	09-10	.155 (.145-.166)	.150 (.140-.170)	.220 (.200-.240)	.310 (.280-.330)	.380 (.340-.410)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html

Urinary Thallium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.168 (.157-.180)	.167 (.156-.178)	.235 (.216-.253)	.337 (.310-.365)	.425 (.369-.497)	2502
	13-14	.162 (.155-.171)	.161 (.151-.169)	.236 (.228-.245)	.338 (.321-.351)	.429 (.405-.444)	2663
Age group							
6-11 years	11-12	.223 (.209-.238)	.216 (.200-.241)	.301 (.275-.336)	.395 (.371-.440)	.486 (.422-.568)	398
	13-14	.222 (.199-.249)	.227 (.215-.255)	.318 (.279-.360)	.429 (.386-.458)	.502 (.457-.537)	402
12-19 years	11-12	.149 (.134-.165)	.147 (.130-.169)	.200 (.180-.218)	.276 (.235-.321)	.339 (.268-.500)	390
	13-14	.145 (.133-.158)	.141 (.131-.160)	.213 (.182-.231)	.276 (.237-.301)	.315 (.283-.361)	451
20 years and older	11-12	.166 (.155-.179)	.164 (.154-.175)	.233 (.212-.250)	.333 (.298-.367)	.436 (.365-.510)	1714
	13-14	.160 (.153-.168)	.157 (.148-.165)	.229 (.222-.241)	.333 (.313-.352)	.429 (.394-.457)	1810
Gender							
Males	11-12	.154 (.142-.167)	.155 (.144-.165)	.211 (.197-.233)	.292 (.258-.326)	.353 (.312-.385)	1261
	13-14	.147 (.137-.158)	.141 (.133-.150)	.206 (.194-.222)	.295 (.272-.315)	.368 (.341-.414)	1317
Females	11-12	.183 (.172-.195)	.180 (.168-.193)	.261 (.240-.286)	.382 (.349-.420)	.480 (.422-.510)	1241
	13-14	.179 (.172-.187)	.180 (.171-.190)	.264 (.248-.274)	.374 (.352-.402)	.439 (.416-.482)	1346
Race/ethnicity							
Mexican Americans	11-12	.160 (.150-.170)	.163 (.141-.175)	.222 (.198-.245)	.295 (.276-.326)	.359 (.302-.440)	317
	13-14	.159 (.151-.168)	.151 (.142-.162)	.218 (.194-.230)	.313 (.282-.350)	.409 (.350-.457)	453
Non-Hispanic blacks	11-12	.137 (.119-.157)	.137 (.113-.159)	.208 (.174-.244)	.284 (.248-.334)	.348 (.293-.406)	669
	13-14	.131 (.125-.137)	.126 (.117-.138)	.181 (.171-.189)	.254 (.232-.276)	.324 (.265-.421)	581
Non-Hispanic whites	11-12	.173 (.161-.186)	.171 (.161-.181)	.235 (.213-.261)	.337 (.309-.373)	.453 (.357-.521)	818
	13-14	.163 (.151-.176)	.163 (.149-.176)	.242 (.226-.255)	.338 (.309-.362)	.430 (.390-.482)	984
All Hispanics	11-12	.162 (.150-.176)	.158 (.142-.174)	.221 (.198-.250)	.304 (.278-.347)	.370 (.316-.440)	573
	13-14	.161 (.153-.170)	.154 (.145-.164)	.222 (.208-.238)	.318 (.294-.344)	.386 (.350-.432)	701
Asians	11-12	.237 (.219-.256)	.228 (.206-.250)	.337 (.297-.367)	.526 (.442-.586)	.663 (.557-.830)	353
	13-14	.242 (.221-.264)	.237 (.216-.268)	.352 (.304-.382)	.456 (.417-.529)	.570 (.460-.857)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Thallium_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Thallium_FactSheet.html

Urinary Tin (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.621 (.569-.678)	.530 (.470-.590)	1.16 (.990-1.35)	2.94 (2.43-3.44)	4.74 (4.07-5.90)	2504
	13-14	.433 (.374-.500)	.380 (.330-.440)	.930 (.790-1.16)	2.30 (2.02-2.67)	4.14 (3.12-5.46)	2664
Age group							
6-11 years	11-12	1.17 (.985-1.39)	1.12 (.820-1.43)	2.61 (2.24-2.95)	5.07 (3.44-7.29)	8.05 (5.07-12.7)	399
	13-14	.867 (.702-1.07)	.850 (.650-1.15)	2.16 (1.67-2.92)	5.16 (3.23-6.49)	7.25 (5.03-9.48)	402
12-19 years	11-12	.585 (.497-.688)	.470 (.380-.610)	1.21 (.880-1.60)	2.68 (1.92-3.65)	4.18 (3.19-4.93)	390
	13-14	.404 (.320-.511)	.370 (.290-.490)	.940 (.690-1.21)	2.02 (1.41-2.86)	3.19 (2.28-4.14)	451
20 years and older	11-12	.585 (.521-.656)	.510 (.450-.580)	1.02 (.870-1.24)	2.58 (2.09-3.40)	4.46 (3.46-5.97)	1715
	13-14	.406 (.352-.469)	.360 (.320-.410)	.830 (.730-1.00)	2.16 (1.73-2.38)	3.40 (2.80-4.84)	1811
Gender							
Males	11-12	.622 (.550-.704)	.530 (.470-.590)	1.11 (.930-1.28)	3.02 (2.27-3.84)	4.89 (3.65-6.72)	1262
	13-14	.414 (.360-.476)	.360 (.320-.420)	.840 (.720-1.01)	2.25 (1.70-2.81)	4.47 (3.15-5.57)	1318
Females	11-12	.620 (.558-.690)	.550 (.460-.620)	1.22 (.990-1.45)	2.77 (2.29-3.36)	4.59 (3.98-5.54)	1242
	13-14	.451 (.376-.541)	.410 (.350-.470)	1.05 (.830-1.34)	2.36 (1.97-2.92)	3.90 (2.99-5.21)	1346
Race/ethnicity							
Mexican Americans	11-12	.644 (.527-.786)	.580 (.430-.700)	1.08 (.830-1.43)	2.66 (1.88-4.41)	5.54 (3.10-8.30)	317
	13-14	.410 (.314-.536)	.360 (.270-.490)	.890 (.680-1.24)	2.25 (1.39-3.26)	4.40 (2.31-6.11)	453
Non-Hispanic blacks	11-12	.950 (.825-1.09)	.860 (.740-1.00)	1.86 (1.63-2.16)	4.22 (3.28-5.55)	7.73 (4.93-12.4)	669
	13-14	.729 (.570-.932)	.720 (.520-.880)	1.50 (1.18-1.93)	3.60 (2.82-5.03)	6.79 (4.85-9.94)	581
Non-Hispanic whites	11-12	.579 (.513-.654)	.490 (.430-.570)	1.03 (.830-1.28)	2.72 (2.08-3.62)	4.53 (3.41-6.03)	820
	13-14	.402 (.341-.473)	.350 (.310-.410)	.840 (.700-1.06)	2.20 (1.84-2.39)	3.39 (2.67-5.18)	985
All Hispanics	11-12	.642 (.575-.717)	.570 (.460-.640)	1.23 (.990-1.41)	2.77 (2.12-3.29)	4.57 (3.56-6.54)	573
	13-14	.432 (.355-.526)	.410 (.330-.490)	.910 (.750-1.17)	2.25 (1.61-2.93)	4.22 (2.67-5.80)	701
Asians	11-12	.477 (.433-.526)	.400 (.350-.460)	.820 (.690-1.01)	2.00 (1.34-2.39)	2.58 (2.21-3.90)	353
	13-14	.270 (.216-.337)	.230 (.170-.310)	.570 (.400-.750)	1.31 (.810-1.83)	2.02 (1.54-3.56)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.22 and 0.09.

Urinary Tin (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.705 (.653-.761)	.624 (.567-.678)	1.24 (1.11-1.34)	2.54 (2.29-2.80)	4.50 (3.76-5.33)	2502
	13-14	.499 (.436-.570)	.438 (.389-.510)	.995 (.826-1.14)	2.25 (1.99-2.64)	3.72 (3.17-4.48)	2663
Age group							
6-11 years	11-12	1.67 (1.46-1.90)	1.60 (1.44-1.73)	2.83 (2.61-3.31)	5.61 (4.50-7.22)	7.91 (6.11-12.1)	398
	13-14	1.29 (1.07-1.57)	1.36 (1.00-1.64)	2.82 (2.22-3.25)	5.93 (3.80-7.26)	7.82 (6.17-13.4)	402
12-19 years	11-12	.559 (.475-.659)	.484 (.411-.543)	1.03 (.725-1.39)	1.97 (1.43-2.49)	2.80 (2.00-3.74)	390
	13-14	.366 (.304-.441)	.347 (.254-.455)	.735 (.600-.870)	1.45 (1.16-1.77)	2.21 (1.48-3.03)	451
20 years and older	11-12	.665 (.599-.737)	.593 (.537-.663)	1.11 (.956-1.30)	2.32 (1.94-2.67)	4.04 (3.00-5.09)	1714
	13-14	.473 (.414-.539)	.417 (.372-.475)	.882 (.737-1.05)	1.96 (1.74-2.33)	3.32 (2.83-3.91)	1810
Gender							
Males	11-12	.584 (.524-.651)	.515 (.436-.576)	.966 (.875-1.12)	2.29 (1.86-2.80)	4.17 (2.80-5.55)	1261
	13-14	.412 (.356-.477)	.353 (.302-.406)	.740 (.606-.949)	1.96 (1.64-2.30)	3.30 (2.73-4.65)	1317
Females	11-12	.843 (.772-.920)	.764 (.676-.857)	1.42 (1.21-1.72)	2.70 (2.51-3.19)	4.81 (3.50-5.59)	1241
	13-14	.599 (.515-.697)	.557 (.491-.608)	1.19 (1.00-1.37)	2.58 (2.00-3.19)	4.00 (3.20-5.50)	1346
Race/ethnicity							
Mexican Americans	11-12	.724 (.599-.874)	.640 (.482-.785)	1.23 (1.00-1.72)	3.28 (2.27-4.17)	5.29 (3.28-7.22)	317
	13-14	.468 (.372-.588)	.394 (.294-.554)	.833 (.712-1.27)	2.19 (1.73-3.01)	3.29 (2.24-7.09)	453
Non-Hispanic blacks	11-12	.739 (.648-.842)	.684 (.553-.802)	1.52 (1.27-1.79)	3.19 (2.66-3.91)	5.28 (3.47-7.90)	669
	13-14	.555 (.459-.670)	.495 (.401-.600)	1.10 (.989-1.40)	2.80 (2.04-3.62)	4.99 (3.31-7.26)	581
Non-Hispanic whites	11-12	.701 (.636-.772)	.624 (.557-.683)	1.22 (1.06-1.39)	2.50 (2.06-2.79)	4.22 (2.94-5.35)	818
	13-14	.494 (.418-.584)	.438 (.380-.527)	.970 (.787-1.16)	2.09 (1.76-2.73)	3.63 (2.83-5.50)	984
All Hispanics	11-12	.719 (.638-.810)	.640 (.543-.739)	1.23 (1.06-1.41)	3.18 (2.32-3.74)	4.51 (3.63-6.13)	573
	13-14	.482 (.409-.568)	.401 (.337-.485)	.866 (.725-1.17)	2.31 (1.91-3.10)	4.04 (2.88-5.03)	701
Asians	11-12	.638 (.560-.727)	.543 (.503-.667)	1.00 (.867-1.17)	1.96 (1.49-2.36)	3.03 (2.23-3.58)	353
	13-14	.423 (.354-.506)	.369 (.305-.411)	.745 (.529-1.12)	1.98 (1.08-2.54)	2.73 (1.82-6.78)	292

Urinary Tungsten (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.093 (.087-.100)	.090 (.080-.090)	.180 (.160-.190)	.320 (.280-.370)	.500 (.430-.550)	2338
	01-02	.082 (.073-.092)	.070 (.060-.090)	.160 (.140-.180)	.300 (.260-.350)	.460 (.370-.560)	2652
	03-04	.071 (.064-.078)	.070 (.060-.080)	.130 (.120-.140)	.270 (.230-.300)	.400 (.330-.480)	2558
	05-06	.085 (.079-.092)	.090 (.080-.090)	.170 (.150-.180)	.310 (.280-.340)	.470 (.400-.520)	2576
	07-08	.099 (.093-.105)	.100 (.090-.110)	.190 (.180-.200)	.360 (.320-.380)	.500 (.440-.570)	2627
	09-10	.081 (.075-.087)	.080 (.070-.090)	.160 (.150-.170)	.310 (.270-.330)	.460 (.370-.540)	2847
Age group 6-11 years	99-00	.158 (.123-.204)	.160 (.120-.220)	.270 (.220-.350)	.510 (.380-.560)	.620 (.510-.950)	320
	01-02	.137 (.110-.170)	.140 (.110-.170)	.260 (.200-.350)	.460 (.360-.690)	.770 (.510-1.53)	363
	03-04	.130 (.111-.151)	.140 (.120-.150)	.240 (.190-.290)	.410 (.290-.500)	.500 (.370-.630)	290
	05-06	.142 (.121-.166)	.140 (.120-.170)	.230 (.210-.290)	.430 (.330-.610)	.640 (.440-.850)	355
	07-08	.160 (.138-.186)	.150 (.130-.170)	.310 (.240-.390)	.510 (.450-.580)	.810 (.560-1.15)	394
	09-10	.151 (.126-.180)	.150 (.110-.200)	.310 (.230-.400)	.560 (.400-.770)	.770 (.560-1.04)	378
12-19 years	99-00	.113 (.097-.132)	.110 (.090-.130)	.210 (.180-.250)	.360 (.310-.440)	.530 (.380-.800)	679
	01-02	.113 (.095-.135)	.110 (.090-.130)	.210 (.180-.260)	.400 (.310-.520)	.570 (.430-.790)	744
	03-04	.105 (.090-.122)	.100 (.090-.120)	.190 (.160-.230)	.350 (.290-.460)	.530 (.350-1.00)	725
	05-06	.131 (.108-.158)	.130 (.100-.160)	.250 (.200-.310)	.430 (.360-.530)	.620 (.410-1.04)	701
	07-08	.150 (.136-.167)	.160 (.140-.180)	.250 (.220-.290)	.470 (.350-.660)	.660 (.430-1.05)	376
	09-10	.101 (.089-.115)	.100 (.080-.120)	.210 (.190-.240)	.360 (.300-.460)	.540 (.440-.650)	451
20 years and older	99-00	.084 (.078-.091)	.080 (.070-.090)	.160 (.130-.180)	.280 (.260-.320)	.450 (.360-.520)	1339
	01-02	.073 (.065-.082)	.060 (.050-.070)	.140 (.110-.160)	.260 (.210-.310)	.380 (.310-.490)	1545
	03-04	.062 (.056-.068)	.060 (.050-.070)	.110 (.100-.120)	.210 (.180-.250)	.360 (.270-.430)	1543
	05-06	.075 (.070-.081)	.080 (.070-.080)	.140 (.130-.160)	.250 (.220-.310)	.410 (.340-.470)	1520
	07-08	.088 (.081-.095)	.090 (.080-.100)	.170 (.150-.190)	.310 (.280-.340)	.450 (.390-.500)	1857
	09-10	.073 (.068-.079)	.080 (.070-.080)	.150 (.130-.160)	.260 (.230-.300)	.370 (.330-.460)	2018
Gender Males	99-00	.107 (.096-.120)	.100 (.090-.120)	.210 (.190-.230)	.390 (.310-.470)	.530 (.470-.650)	1160
	01-02	.088 (.074-.105)	.080 (.060-.100)	.170 (.140-.220)	.330 (.260-.390)	.490 (.380-.580)	1307
	03-04	.081 (.071-.093)	.080 (.070-.090)	.140 (.130-.170)	.300 (.250-.340)	.430 (.340-.560)	1281
	05-06	.095 (.090-.101)	.090 (.080-.100)	.180 (.160-.190)	.340 (.310-.380)	.480 (.420-.610)	1271
	07-08	.109 (.102-.116)	.110 (.100-.130)	.210 (.190-.240)	.380 (.350-.450)	.550 (.450-.660)	1327
	09-10	.090 (.082-.098)	.090 (.080-.100)	.170 (.150-.190)	.320 (.290-.350)	.500 (.410-.550)	1398
Females	99-00	.082 (.077-.087)	.070 (.060-.080)	.150 (.130-.160)	.270 (.240-.300)	.400 (.320-.470)	1178
	01-02	.076 (.069-.084)	.060 (.060-.080)	.150 (.120-.170)	.280 (.230-.330)	.430 (.340-.560)	1345
	03-04	.062 (.056-.069)	.060 (.050-.070)	.110 (.100-.120)	.220 (.190-.250)	.370 (.270-.460)	1277
	05-06	.077 (.069-.085)	.080 (.070-.090)	.160 (.150-.170)	.280 (.250-.320)	.440 (.350-.510)	1305
	07-08	.090 (.083-.098)	.090 (.080-.100)	.170 (.160-.180)	.300 (.270-.350)	.460 (.420-.550)	1300
	09-10	.074 (.067-.081)	.070 (.070-.080)	.150 (.130-.170)	.280 (.240-.330)	.400 (.320-.600)	1449

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.04, 0.021, 0.021, and 0.021 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Tungsten (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.113 (.095-.133)	.110 (.090-.130)	.200 (.160-.250)	.400 (.300-.520)	.550 (.420-.830)	790
	01-02	.101 (.093-.109)	.100 (.090-.110)	.190 (.170-.210)	.370 (.310-.430)	.570 (.450-.670)	680
	03-04	.086 (.073-.100)	.080 (.070-.100)	.170 (.120-.220)	.360 (.230-.620)	.640 (.410-.800)	618
	05-06	.102 (.088-.118)	.100 (.080-.110)	.200 (.170-.220)	.450 (.310-.650)	.730 (.510-1.04)	652
	07-08	.106 (.084-.135)	.110 (.080-.150)	.210 (.170-.270)	.400 (.250-.670)	.580 (.400-1.12)	515
	09-10	.099 (.089-.109)	.090 (.090-.100)	.200 (.170-.220)	.380 (.340-.470)	.540 (.480-.580)	613
Non-Hispanic blacks	99-00	.113 (.101-.126)	.100 (.090-.130)	.210 (.180-.250)	.370 (.290-.460)	.560 (.420-.810)	562
	01-02	.096 (.080-.116)	.090 (.070-.120)	.160 (.130-.250)	.310 (.270-.400)	.460 (.400-.590)	649
	03-04	.092 (.082-.104)	.090 (.080-.110)	.160 (.150-.180)	.300 (.250-.330)	.470 (.340-.550)	723
	05-06	.101 (.088-.116)	.110 (.090-.120)	.190 (.160-.220)	.320 (.280-.370)	.450 (.340-.650)	692
	07-08	.120 (.099-.146)	.120 (.090-.160)	.240 (.200-.290)	.390 (.340-.440)	.540 (.460-.690)	589
	09-10	.093 (.086-.100)	.100 (.090-.110)	.180 (.160-.200)	.290 (.270-.340)	.400 (.320-.590)	543
Non-Hispanic whites	99-00	.092 (.084-.100)	.080 (.070-.100)	.180 (.160-.200)	.320 (.270-.380)	.470 (.380-.550)	802
	01-02	.076 (.066-.088)	.060 (.050-.080)	.150 (.120-.180)	.290 (.230-.360)	.430 (.330-.620)	1117
	03-04	.065 (.058-.073)	.060 (.060-.070)	.120 (.100-.130)	.230 (.190-.290)	.380 (.320-.410)	1074
	05-06	.082 (.075-.089)	.080 (.080-.090)	.160 (.140-.180)	.300 (.250-.340)	.430 (.380-.480)	1041
	07-08	.093 (.087-.101)	.100 (.090-.110)	.180 (.160-.190)	.330 (.290-.370)	.470 (.410-.570)	1095
	09-10	.077 (.070-.083)	.080 (.070-.090)	.150 (.140-.170)	.280 (.250-.310)	.400 (.330-.540)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.04, 0.04, 0.04, 0.021, 0.021, and 0.021 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Tungsten (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.074 (.067-.082)	.069 (.062-.076)	.143 (.127-.170)	.284 (.235-.361)	.434 (.354-.522)	2491
	13-14	.059 (.052-.065)	.058 (.050-.068)	.129 (.113-.146)	.241 (.220-.264)	.380 (.337-.436)	2664
Age group							
6-11 years	11-12	.136 (.120-.155)	.138 (.123-.162)	.272 (.229-.301)	.448 (.391-.504)	.583 (.498-.691)	398
	13-14	.111 (.097-.127)	.114 (.098-.130)	.224 (.184-.245)	.367 (.322-.449)	.606 (.436-.758)	402
12-19 years	11-12	.107 (.088-.130)	.112 (.083-.141)	.212 (.175-.269)	.371 (.308-.458)	.506 (.399-.647)	388
	13-14	.093 (.081-.106)	.094 (.082-.107)	.182 (.161-.207)	.364 (.316-.406)	.559 (.406-.774)	451
20 years and older	11-12	.066 (.058-.074)	.060 (.055-.067)	.121 (.104-.144)	.237 (.194-.315)	.374 (.274-.493)	1705
	13-14	.051 (.045-.058)	.050 (.042-.059)	.111 (.092-.129)	.213 (.178-.238)	.320 (.264-.380)	1811
Gender							
Males	11-12	.084 (.074-.095)	.080 (.068-.094)	.164 (.136-.200)	.343 (.260-.408)	.471 (.388-.537)	1254
	13-14	.065 (.057-.074)	.066 (.054-.076)	.141 (.121-.159)	.256 (.230-.295)	.380 (.321-.468)	1318
Females	11-12	.066 (.060-.073)	.060 (.054-.067)	.131 (.115-.145)	.247 (.212-.294)	.361 (.284-.463)	1237
	13-14	.053 (.048-.059)	.053 (.043-.063)	.119 (.104-.129)	.226 (.197-.244)	.359 (.313-.441)	1346
Race/ethnicity							
Mexican Americans	11-12	.097 (.082-.114)	.097 (.071-.115)	.198 (.150-.282)	.434 (.356-.534)	.691 (.473-.827)	314
	13-14	.069 (.057-.083)	.072 (.054-.090)	.150 (.114-.207)	.280 (.216-.395)	.515 (.350-.648)	453
Non-Hispanic blacks	11-12	.102 (.087-.119)	.096 (.082-.120)	.184 (.145-.245)	.387 (.282-.496)	.537 (.391-.808)	669
	13-14	.085 (.073-.099)	.085 (.071-.096)	.166 (.151-.194)	.350 (.310-.422)	.493 (.424-.676)	581
Non-Hispanic whites	11-12	.068 (.060-.076)	.063 (.056-.070)	.130 (.113-.153)	.260 (.212-.327)	.370 (.307-.463)	810
	13-14	.053 (.046-.062)	.054 (.043-.065)	.117 (.096-.139)	.215 (.172-.255)	.328 (.243-.468)	985
All Hispanics	11-12	.082 (.072-.092)	.072 (.061-.094)	.162 (.136-.197)	.371 (.294-.433)	.534 (.422-.692)	570
	13-14	.064 (.056-.073)	.065 (.054-.076)	.145 (.119-.169)	.264 (.217-.350)	.411 (.346-.585)	701
Asians	11-12	.067 (.058-.077)	.066 (.052-.078)	.135 (.115-.168)	.252 (.206-.319)	.401 (.260-.635)	353
	13-14	.052 (.040-.069)	.047 (.030-.067)	.119 (.074-.188)	.290 (.168-.593)	.537 (.290-.700)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.026 and 0.018.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Tungsten (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.087 (.080-.095)	.080 (.075-.086)	.146 (.136-.158)	.270 (.206-.333)	.383 (.302-.459)	2338
	01-02	.078 (.069-.087)	.074 (.064-.084)	.138 (.122-.154)	.255 (.216-.300)	.359 (.315-.436)	2651
	03-04	.070 (.063-.078)	.065 (.059-.074)	.117 (.107-.133)	.215 (.179-.253)	.333 (.255-.439)	2558
	05-06	.084 (.080-.089)	.080 (.080-.080)	.140 (.130-.150)	.250 (.210-.290)	.350 (.290-.440)	2576
	07-08	.103 (.096-.111)	.100 (.090-.110)	.170 (.160-.190)	.320 (.290-.360)	.470 (.410-.540)	2627
	09-10	.086 (.080-.093)	.080 (.070-.090)	.150 (.130-.160)	.270 (.230-.310)	.400 (.340-.470)	2847
Age group 6-11 years	99-00	.174 (.150-.201)	.169 (.136-.198)	.293 (.216-.333)	.439 (.331-.667)	.667 (.452-.880)	320
	01-02	.168 (.144-.197)	.158 (.139-.190)	.275 (.231-.326)	.412 (.333-.554)	.634 (.436-1.28)	363
	03-04	.151 (.131-.174)	.144 (.119-.167)	.250 (.205-.283)	.333 (.278-.484)	.484 (.333-.739)	290
	05-06	.175 (.152-.202)	.160 (.140-.180)	.270 (.220-.320)	.560 (.330-.790)	.790 (.470-1.18)	355
	07-08	.209 (.185-.235)	.200 (.180-.240)	.340 (.290-.370)	.540 (.450-.660)	.780 (.620-.910)	394
	09-10	.205 (.177-.239)	.200 (.160-.230)	.330 (.290-.440)	.620 (.450-.850)	.930 (.690-1.08)	378
12-19 years	99-00	.084 (.078-.091)	.079 (.074-.084)	.138 (.124-.158)	.231 (.180-.287)	.339 (.237-.465)	679
	01-02	.081 (.071-.092)	.081 (.072-.091)	.148 (.122-.167)	.250 (.208-.301)	.359 (.272-.431)	744
	03-04	.075 (.065-.086)	.071 (.061-.082)	.122 (.098-.148)	.197 (.167-.308)	.379 (.197-.582)	725
	05-06	.101 (.086-.117)	.100 (.080-.110)	.170 (.140-.200)	.300 (.200-.370)	.370 (.300-.770)	701
	07-08	.118 (.104-.132)	.120 (.110-.130)	.180 (.160-.210)	.340 (.230-.550)	.530 (.310-.810)	376
	09-10	.094 (.085-.106)	.090 (.080-.110)	.150 (.120-.180)	.270 (.210-.290)	.370 (.280-.500)	451
20 years and older	99-00	.080 (.072-.089)	.075 (.067-.082)	.130 (.116-.146)	.218 (.179-.301)	.347 (.245-.426)	1339
	01-02	.070 (.063-.079)	.067 (.058-.075)	.119 (.099-.139)	.216 (.176-.267)	.333 (.253-.431)	1544
	03-04	.063 (.057-.071)	.059 (.053-.065)	.105 (.094-.117)	.181 (.155-.215)	.279 (.217-.370)	1543
	05-06	.075 (.071-.079)	.070 (.070-.080)	.120 (.110-.130)	.210 (.200-.220)	.290 (.240-.360)	1520
	07-08	.093 (.087-.101)	.090 (.080-.100)	.160 (.140-.170)	.280 (.250-.310)	.420 (.350-.490)	1857
	09-10	.078 (.072-.084)	.070 (.070-.080)	.130 (.120-.140)	.220 (.190-.260)	.340 (.270-.400)	2018
Gender Males	99-00	.083 (.074-.094)	.073 (.063-.086)	.146 (.126-.165)	.279 (.198-.386)	.439 (.329-.605)	1160
	01-02	.071 (.060-.083)	.065 (.056-.077)	.125 (.098-.153)	.255 (.203-.306)	.364 (.300-.431)	1306
	03-04	.068 (.059-.079)	.062 (.054-.071)	.111 (.098-.133)	.216 (.170-.284)	.341 (.240-.500)	1281
	05-06	.078 (.073-.083)	.070 (.070-.080)	.130 (.120-.150)	.240 (.200-.300)	.360 (.300-.440)	1271
	07-08	.097 (.090-.106)	.090 (.090-.110)	.170 (.150-.180)	.310 (.280-.360)	.440 (.410-.480)	1327
	09-10	.082 (.074-.089)	.070 (.070-.080)	.140 (.120-.150)	.250 (.220-.310)	.440 (.320-.500)	1398
Females	99-00	.091 (.085-.098)	.084 (.080-.091)	.145 (.136-.158)	.265 (.200-.301)	.339 (.300-.381)	1178
	01-02	.085 (.077-.094)	.083 (.075-.091)	.143 (.130-.161)	.258 (.216-.317)	.353 (.317-.538)	1345
	03-04	.072 (.065-.079)	.069 (.063-.078)	.121 (.108-.138)	.211 (.176-.237)	.333 (.261-.439)	1277
	05-06	.090 (.085-.096)	.080 (.080-.090)	.150 (.140-.160)	.250 (.210-.290)	.350 (.260-.530)	1305
	07-08	.109 (.100-.118)	.100 (.090-.120)	.180 (.160-.210)	.330 (.290-.360)	.520 (.400-.590)	1300
	09-10	.091 (.083-.100)	.090 (.080-.090)	.150 (.130-.170)	.270 (.210-.340)	.380 (.330-.450)	1449

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Tungsten (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.106 (.093-.120)	.100 (.086-.116)	.184 (.152-.214)	.329 (.267-.392)	.497 (.354-.727)	790
	01-02	.098 (.090-.108)	.089 (.081-.100)	.164 (.143-.187)	.294 (.258-.375)	.555 (.410-.797)	679
	03-04	.079 (.065-.096)	.073 (.054-.093)	.136 (.103-.197)	.300 (.233-.426)	.482 (.344-.823)	618
	05-06	.096 (.083-.111)	.090 (.080-.090)	.160 (.150-.180)	.330 (.250-.420)	.670 (.360-.890)	652
	07-08	.106 (.083-.137)	.110 (.080-.140)	.200 (.160-.270)	.400 (.260-.710)	.610 (.310-1.12)	515
	09-10	.103 (.096-.111)	.100 (.090-.110)	.180 (.160-.200)	.330 (.290-.390)	.480 (.390-.540)	613
Non-Hispanic blacks	99-00	.073 (.064-.083)	.071 (.061-.081)	.124 (.109-.154)	.201 (.188-.222)	.360 (.217-.465)	562
	01-02	.066 (.056-.077)	.060 (.049-.079)	.109 (.090-.125)	.199 (.153-.285)	.340 (.250-.414)	649
	03-04	.066 (.059-.074)	.067 (.055-.075)	.105 (.095-.120)	.186 (.150-.224)	.317 (.214-.358)	723
	05-06	.073 (.065-.082)	.070 (.060-.080)	.120 (.110-.140)	.210 (.190-.260)	.320 (.260-.390)	692
	07-08	.088 (.076-.102)	.090 (.070-.100)	.150 (.140-.160)	.240 (.220-.300)	.380 (.270-.630)	589
	09-10	.074 (.067-.080)	.070 (.060-.080)	.120 (.110-.140)	.210 (.180-.250)	.310 (.220-.410)	543
Non-Hispanic whites	99-00	.091 (.083-.100)	.082 (.077-.088)	.150 (.136-.169)	.279 (.200-.354)	.385 (.302-.462)	802
	01-02	.078 (.068-.088)	.073 (.061-.085)	.139 (.121-.157)	.253 (.209-.308)	.353 (.286-.453)	1117
	03-04	.069 (.060-.078)	.063 (.057-.071)	.116 (.104-.133)	.199 (.167-.237)	.299 (.222-.439)	1074
	05-06	.085 (.080-.090)	.080 (.080-.090)	.140 (.130-.160)	.240 (.210-.280)	.340 (.280-.420)	1041
	07-08	.104 (.096-.114)	.100 (.090-.110)	.180 (.160-.200)	.310 (.280-.360)	.460 (.390-.530)	1095
	09-10	.086 (.078-.094)	.080 (.070-.090)	.140 (.130-.160)	.250 (.200-.310)	.370 (.330-.400)	1225

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Tungsten (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.084 (.076-.093)	.077 (.072-.085)	.140 (.123-.161)	.260 (.209-.323)	.402 (.294-.536)	2489
	13-14	.068 (.061-.075)	.065 (.058-.072)	.124 (.111-.136)	.224 (.195-.251)	.332 (.303-.377)	2663
Age group							
6-11 years	11-12	.194 (.174-.217)	.183 (.159-.214)	.312 (.256-.407)	.500 (.421-.652)	.687 (.515-.863)	397
	13-14	.166 (.152-.181)	.166 (.149-.176)	.249 (.229-.295)	.400 (.327-.518)	.673 (.457-.764)	402
12-19 years	11-12	.103 (.091-.116)	.099 (.086-.111)	.164 (.144-.181)	.288 (.203-.324)	.381 (.286-.656)	388
	13-14	.084 (.073-.097)	.089 (.071-.101)	.144 (.127-.162)	.246 (.195-.293)	.327 (.293-.492)	451
20 years and older	11-12	.074 (.067-.083)	.069 (.064-.075)	.121 (.104-.138)	.215 (.170-.263)	.334 (.233-.458)	1704
	13-14	.060 (.054-.066)	.057 (.051-.062)	.105 (.092-.117)	.186 (.163-.212)	.286 (.227-.357)	1810
Gender							
Males	11-12	.079 (.068-.090)	.075 (.064-.085)	.131 (.112-.150)	.261 (.180-.327)	.400 (.276-.539)	1253
	13-14	.065 (.057-.073)	.065 (.054-.075)	.121 (.103-.135)	.199 (.179-.248)	.316 (.278-.377)	1317
Females	11-12	.090 (.083-.097)	.079 (.075-.088)	.150 (.134-.165)	.257 (.223-.324)	.404 (.314-.544)	1236
	13-14	.071 (.065-.077)	.065 (.059-.072)	.127 (.116-.137)	.240 (.220-.261)	.342 (.311-.383)	1346
Race/ethnicity							
Mexican Americans	11-12	.110 (.090-.134)	.102 (.071-.142)	.192 (.150-.270)	.381 (.263-.633)	.633 (.396-.729)	314
	13-14	.079 (.067-.093)	.073 (.059-.093)	.146 (.115-.172)	.287 (.211-.369)	.471 (.338-.602)	453
Non-Hispanic blacks	11-12	.079 (.068-.092)	.072 (.060-.083)	.129 (.102-.151)	.246 (.168-.411)	.440 (.253-.669)	669
	13-14	.064 (.056-.074)	.059 (.050-.071)	.118 (.105-.127)	.233 (.193-.275)	.342 (.296-.430)	581
Non-Hispanic whites	11-12	.082 (.072-.094)	.076 (.068-.088)	.135 (.113-.164)	.247 (.183-.324)	.353 (.250-.515)	808
	13-14	.066 (.058-.075)	.064 (.056-.072)	.118 (.100-.141)	.200 (.167-.257)	.307 (.227-.395)	984
All Hispanics	11-12	.092 (.078-.108)	.079 (.068-.100)	.164 (.134-.184)	.312 (.263-.404)	.473 (.367-.664)	570
	13-14	.072 (.064-.080)	.068 (.058-.079)	.133 (.115-.148)	.240 (.200-.320)	.391 (.319-.549)	701
Asians	11-12	.089 (.075-.107)	.082 (.073-.103)	.152 (.129-.181)	.296 (.207-.413)	.449 (.299-.824)	353
	13-14	.082 (.064-.104)	.079 (.059-.101)	.157 (.119-.227)	.330 (.227-.480)	.503 (.316-.818)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Tungsten_BiomonitoringSummary.html

Urinary Uranium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.008 (.007-.009)	.007 (.006-.008)	.013 (.010-.017)	.027 (.021-.038)	.046 (.037-.056)	2464
	01-02	.009 (.007-.010)	.008 (.007-.009)	.014 (.012-.018)	.030 (.023-.039)	.046 (.034-.062)	2690
	03-04	.008 (.007-.008)	.007 (.006-.007)	.011 (.010-.013)	.021 (.017-.026)	.031 (.026-.037)	2557
	05-06	.006 (.005-.006)	.005 (.005-.006)	.010 (.009-.012)	.019 (.016-.022)	.033 (.023-.041)	2576
	07-08	.007 (.006-.008)	.007 (.005-.008)	.013 (.011-.015)	.024 (.018-.033)	.039 (.026-.057)	2627
	09-10	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.022 (.019-.030)	.036 (.029-.044)	2848
Age group 6-11 years	99-00	.009 (.007-.011)	.007 (.006-.009)	.013 (.009-.022)	.032 (.019-.048)	.048 (.033-.066)	340
	01-02	.008 (.007-.010)	.008 (.006-.010)	.014 (.010-.020)	.026 (.020-.036)	.040 (.025-.049)	368
	03-04	.008 (.007-.009)	.007 (.006-.009)	.012 (.009-.016)	.020 (.016-.026)	.028 (.020-.039)	289
	05-06	.006 (.005-.007)	.005 (.004-.007)	.010 (.008-.011)	.015 (.012-.031)	.031 (.013-.051)	355
	07-08	.007 (.006-.008)	.006 (.005-.008)	.012 (.009-.016)	.021 (.016-.027)	.030 (.022-.039)	394
	09-10	.006 (.005-.008)	.006 (.005-.008)	.012 (.009-.014)	.018 (.013-.034)	.033 (.016-.052)	378
12-19 years	99-00	.009 (.008-.011)	.009 (.008-.010)	.015 (.012-.018)	.026 (.020-.043)	.044 (.028-.072)	719
	01-02	.010 (.008-.012)	.010 (.008-.012)	.017 (.013-.023)	.030 (.022-.042)	.042 (.027-.088)	762
	03-04	.010 (.009-.011)	.009 (.008-.010)	.015 (.012-.018)	.028 (.023-.036)	.038 (.036-.053)	725
	05-06	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.023 (.018-.032)	.034 (.027-.045)	701
	07-08	.009 (.007-.011)	.008 (.007-.011)	.016 (.014-.020)	.029 (.022-.056)	.056 (.027-.156)	376
	09-10	.008 (.007-.010)	.008 (.006-.010)	.014 (.011-.018)	.023 (.020-.038)	.040 (.024-.059)	451
20 years and older	99-00	.008 (.006-.009)	.007 (.005-.008)	.013 (.010-.017)	.027 (.021-.040)	.046 (.036-.056)	1405
	01-02	.009 (.007-.010)	.008 (.007-.009)	.014 (.012-.017)	.031 (.022-.040)	.046 (.034-.065)	1560
	03-04	*	.006 (.005-.007)	.011 (.009-.012)	.019 (.016-.026)	.029 (.024-.038)	1543
	05-06	.006 (.005-.006)	.005 (.005-.006)	.010 (.008-.012)	.019 (.015-.022)	.032 (.022-.041)	1520
	07-08	.007 (.005-.008)	.006 (.005-.008)	.013 (.010-.015)	.024 (.017-.035)	.039 (.026-.052)	1857
	09-10	.007 (.006-.008)	.007 (.006-.008)	.013 (.011-.015)	.023 (.019-.030)	.036 (.029-.044)	2019
Gender Males	99-00	.009 (.008-.011)	.008 (.007-.010)	.015 (.012-.021)	.036 (.024-.046)	.053 (.040-.067)	1227
	01-02	.009 (.008-.011)	.009 (.007-.010)	.015 (.013-.021)	.033 (.024-.045)	.047 (.035-.065)	1335
	03-04	.008 (.007-.009)	.007 (.006-.008)	.013 (.011-.016)	.023 (.019-.027)	.031 (.027-.035)	1280
	05-06	.006 (.006-.007)	.006 (.005-.006)	.011 (.009-.012)	.019 (.015-.022)	.030 (.021-.043)	1271
	07-08	.007 (.006-.009)	.007 (.006-.009)	.014 (.013-.016)	.026 (.021-.037)	.046 (.030-.056)	1327
	09-10	.007 (.006-.009)	.007 (.006-.009)	.014 (.012-.017)	.024 (.020-.034)	.040 (.032-.046)	1398
Females	99-00	.007 (.006-.008)	.006 (.005-.007)	.012 (.009-.015)	.023 (.016-.033)	.036 (.026-.050)	1237
	01-02	.008 (.007-.010)	.008 (.006-.009)	.014 (.011-.017)	.027 (.019-.037)	.041 (.029-.063)	1355
	03-04	*	.006 (.005-.007)	.010 (.009-.011)	.018 (.013-.027)	.031 (.022-.039)	1277
	05-06	.005 (.005-.006)	.005 (.004-.006)	.010 (.008-.011)	.019 (.016-.023)	.034 (.025-.040)	1305
	07-08	.006 (.005-.008)	.006 (.005-.007)	.011 (.009-.015)	.024 (.016-.033)	.035 (.022-.067)	1300
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.011-.014)	.022 (.017-.029)	.033 (.023-.045)	1450

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.004, 0.004, 0.005, 0.002, 0.002, and 0.002 respectively.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Urinary Uranium (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.017 (.012-.023)	.016 (.011-.021)	.033 (.020-.054)	.060 (.040-.127)	.114 (.054-.279)	883
	01-02	.013 (.010-.016)	.012 (.009-.016)	.022 (.017-.030)	.040 (.031-.054)	.055 (.046-.069)	683
	03-04	.014 (.011-.017)	.013 (.009-.018)	.024 (.017-.034)	.041 (.028-.073)	.064 (.039-.158)	618
	05-06	.008 (.007-.009)	.009 (.007-.010)	.014 (.013-.017)	.025 (.021-.033)	.042 (.028-.051)	652
	07-08	.009 (.008-.011)	.009 (.008-.010)	.017 (.014-.022)	.032 (.026-.039)	.047 (.032-.073)	515
	09-10	.009 (.008-.011)	.009 (.008-.011)	.018 (.015-.021)	.034 (.027-.040)	.046 (.039-.055)	613
Non-Hispanic blacks	99-00	.009 (.007-.011)	.008 (.006-.010)	.014 (.010-.020)	.028 (.018-.049)	.052 (.030-.067)	568
	01-02	.008 (.007-.009)	.008 (.007-.009)	.012 (.011-.015)	.021 (.017-.027)	.030 (.023-.037)	667
	03-04	.008 (.008-.009)	.007 (.007-.008)	.012 (.011-.013)	.021 (.017-.027)	.031 (.023-.045)	722
	05-06	.006 (.005-.007)	.006 (.005-.007)	.010 (.009-.011)	.016 (.014-.020)	.023 (.018-.031)	692
	07-08	.007 (.006-.009)	.007 (.006-.008)	.013 (.010-.016)	.024 (.016-.038)	.038 (.025-.055)	589
	09-10	.008 (.007-.010)	.008 (.007-.010)	.014 (.012-.016)	.027 (.017-.044)	.044 (.027-.074)	544
Non-Hispanic whites	99-00	.007 (.006-.009)	.007 (.006-.007)	.012 (.009-.016)	.023 (.017-.037)	.043 (.027-.051)	822
	01-02	.008 (.007-.009)	.007 (.006-.009)	.013 (.011-.016)	.026 (.019-.035)	.037 (.029-.050)	1132
	03-04	*	.006 (.005-.007)	.010 (.009-.012)	.018 (.015-.023)	.027 (.020-.036)	1074
	05-06	.005 (.005-.006)	.005 (.004-.006)	.010 (.008-.012)	.018 (.014-.022)	.033 (.021-.043)	1041
	07-08	.006 (.005-.008)	.006 (.005-.008)	.013 (.009-.016)	.023 (.015-.039)	.038 (.022-.086)	1095
	09-10	.006 (.005-.007)	.006 (.005-.007)	.012 (.011-.014)	.021 (.017-.027)	.032 (.023-.041)	1225

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.004, 0.004, 0.005, 0.002, 0.002, and 0.002 respectively.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Urinary Uranium (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.006 (.005-.007)	.006 (.005-.007)	.011 (.008-.014)	.019 (.015-.025)	.031 (.023-.043)	2504
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.013)	.023 (.015-.038)	.039 (.023-.066)	2664
Age group							
6-11 years	11-12	.006 (.005-.007)	.006 (.005-.008)	.011 (.009-.013)	.019 (.013-.024)	.025 (.020-.037)	399
	13-14	.005 (.004-.007)	.005 (.004-.006)	.010 (.007-.017)	.023 (.015-.034)	.034 (.019-.061)	402
12-19 years	11-12	.007 (.006-.009)	.007 (.005-.008)	.012 (.009-.017)	.021 (.014-.032)	.033 (.021-.052)	390
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.007-.016)	.023 (.013-.047)	.046 (.020-.096)	451
20 years and older	11-12	.006 (.005-.007)	.005 (.004-.007)	.011 (.008-.013)	.019 (.015-.025)	.031 (.023-.043)	1715
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.012)	.023 (.015-.035)	.038 (.023-.066)	1811
Gender							
Males	11-12	.007 (.005-.008)	.006 (.005-.007)	.011 (.009-.014)	.020 (.014-.032)	.034 (.022-.045)	1262
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.014)	.024 (.014-.041)	.040 (.023-.077)	1318
Females	11-12	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.019 (.015-.025)	.029 (.024-.042)	1242
	13-14	.005 (.004-.006)	.005 (.004-.005)	.010 (.008-.012)	.022 (.015-.033)	.036 (.022-.065)	1346
Race/ethnicity							
Mexican Americans	11-12	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.023 (.015-.033)	.031 (.017-.054)	317
	13-14	.008 (.006-.009)	.008 (.006-.011)	.015 (.012-.020)	.028 (.022-.040)	.043 (.028-.058)	453
Non-Hispanic blacks	11-12	.006 (.005-.008)	.006 (.005-.008)	.011 (.008-.014)	.019 (.014-.028)	.029 (.022-.042)	669
	13-14	.005 (.005-.006)	.005 (.005-.006)	.009 (.008-.011)	.017 (.013-.023)	.025 (.016-.046)	581
Non-Hispanic whites	11-12	.006 (.005-.007)	.006 (.004-.007)	.011 (.008-.014)	.021 (.015-.029)	.034 (.023-.045)	820
	13-14	.005 (.004-.006)	.004 (.003-.005)	.009 (.006-.016)	.023 (.011-.046)	.040 (.019-.098)	985
All Hispanics	11-12	.006 (.005-.007)	.005 (.005-.007)	.011 (.008-.014)	.018 (.013-.030)	.030 (.018-.047)	573
	13-14	.007 (.006-.008)	.007 (.005-.008)	.013 (.011-.018)	.026 (.019-.034)	.040 (.026-.057)	701
Asians	11-12	.005 (.005-.006)	.005 (.004-.005)	.009 (.007-.013)	.016 (.014-.020)	.021 (.016-.040)	353
	13-14	.005 (.004-.008)	.005 (.003-.007)	.011 (.006-.025)	.031 (.011-.068)	.051 (.025-.101)	292

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.003 and 0.002.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Urinary Uranium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.024 (.019-.030)	.034 (.027-.053)	2464
	01-02	.008 (.007-.010)	.007 (.006-.009)	.014 (.011-.018)	.026 (.020-.034)	.040 (.028-.058)	2689
	03-04	.008 (.007-.008)	.007 (.006-.008)	.012 (.010-.014)	.021 (.017-.025)	.029 (.023-.039)	2557
	05-06	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.017 (.014-.020)	.026 (.020-.039)	2576
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.016)	.024 (.016-.038)	.038 (.025-.065)	2627
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.020 (.017-.024)	.029 (.024-.035)	2848
Age group 6-11 years	99-00	.009 (.007-.012)	.008 (.006-.011)	.015 (.010-.024)	.030 (.016-.044)	.037 (.030-.077)	340
	01-02	.010 (.008-.011)	.010 (.008-.012)	.015 (.013-.019)	.027 (.018-.032)	.033 (.027-.048)	368
	03-04	.009 (.008-.010)	.008 (.007-.010)	.013 (.011-.017)	.024 (.016-.039)	.033 (.022-.050)	289
	05-06	.007 (.006-.008)	.006 (.005-.008)	.010 (.008-.014)	.018 (.013-.035)	.034 (.018-.048)	355
	07-08	.009 (.007-.011)	.008 (.007-.010)	.014 (.010-.022)	.026 (.016-.053)	.042 (.023-.065)	394
	09-10	.009 (.007-.010)	.008 (.007-.010)	.014 (.011-.016)	.020 (.015-.030)	.029 (.022-.033)	378
12-19 years	99-00	.007 (.006-.008)	.006 (.005-.008)	.010 (.009-.014)	.020 (.014-.030)	.030 (.019-.074)	719
	01-02	.007 (.006-.008)	.007 (.006-.008)	.012 (.009-.016)	.020 (.015-.026)	.026 (.020-.042)	762
	03-04	.007 (.006-.008)	.006 (.005-.007)	.010 (.008-.013)	.019 (.015-.027)	.034 (.022-.041)	725
	05-06	.006 (.005-.007)	.005 (.005-.006)	.009 (.007-.012)	.017 (.013-.022)	.023 (.019-.026)	701
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.016)	.025 (.013-.050)	.033 (.022-.077)	376
	09-10	.007 (.006-.009)	.007 (.006-.008)	.011 (.010-.013)	.017 (.014-.021)	.025 (.017-.038)	451
20 years and older	99-00	.007 (.006-.009)	.007 (.006-.009)	.013 (.010-.016)	.024 (.019-.029)	.034 (.025-.051)	1405
	01-02	.008 (.007-.010)	.007 (.006-.009)	.014 (.011-.019)	.027 (.020-.039)	.043 (.030-.063)	1559
	03-04	*	.007 (.006-.008)	.012 (.010-.014)	.020 (.017-.024)	.028 (.022-.038)	1543
	05-06	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.016 (.014-.019)	.026 (.020-.039)	1520
	07-08	.007 (.006-.008)	.006 (.005-.008)	.012 (.009-.016)	.024 (.016-.036)	.037 (.025-.065)	1857
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.020 (.017-.025)	.029 (.024-.036)	2019
Gender Males	99-00	.007 (.006-.009)	.006 (.005-.008)	.011 (.009-.015)	.021 (.017-.028)	.035 (.024-.056)	1227
	01-02	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.015)	.022 (.018-.028)	.033 (.025-.047)	1334
	03-04	.007 (.006-.008)	.006 (.006-.007)	.010 (.009-.012)	.019 (.015-.024)	.026 (.019-.039)	1280
	05-06	.005 (.005-.005)	.005 (.004-.005)	.008 (.007-.009)	.014 (.013-.016)	.021 (.016-.031)	1271
	07-08	.007 (.005-.008)	.006 (.005-.007)	.012 (.009-.015)	.022 (.016-.031)	.032 (.024-.056)	1327
	09-10	.007 (.006-.008)	.006 (.006-.007)	.011 (.010-.012)	.019 (.015-.023)	.028 (.022-.033)	1398
Females	99-00	.008 (.007-.010)	.007 (.006-.010)	.013 (.010-.017)	.025 (.019-.033)	.034 (.027-.054)	1237
	01-02	.009 (.008-.011)	.009 (.007-.011)	.016 (.012-.021)	.029 (.021-.042)	.045 (.031-.067)	1355
	03-04	*	.008 (.007-.009)	.013 (.011-.016)	.022 (.018-.028)	.031 (.025-.041)	1277
	05-06	.006 (.006-.007)	.006 (.005-.006)	.010 (.009-.011)	.019 (.015-.024)	.035 (.022-.041)	1305
	07-08	.008 (.006-.009)	.007 (.006-.008)	.013 (.010-.018)	.026 (.016-.043)	.042 (.024-.083)	1300
	09-10	.008 (.007-.009)	.008 (.006-.009)	.013 (.011-.015)	.021 (.017-.027)	.031 (.024-.041)	1450

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Urinary Uranium (creatinine corrected) (1999 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.015 (.011-.022)	.015 (.011-.020)	.029 (.016-.058)	.059 (.027-.146)	.100 (.042-.270)	883
	01-02	.012 (.010-.016)	.012 (.009-.016)	.021 (.015-.028)	.033 (.024-.053)	.050 (.034-.080)	682
	03-04	.013 (.010-.016)	.013 (.009-.017)	.022 (.016-.029)	.035 (.026-.051)	.051 (.034-.061)	618
	05-06	.008 (.007-.009)	.007 (.006-.008)	.013 (.010-.015)	.022 (.016-.031)	.035 (.025-.060)	652
	07-08	.009 (.008-.012)	.009 (.007-.011)	.017 (.014-.021)	.031 (.021-.048)	.042 (.027-.097)	515
	09-10	.010 (.009-.011)	.010 (.008-.011)	.016 (.013-.018)	.026 (.022-.030)	.036 (.030-.044)	613
Non-Hispanic blacks	99-00	.006 (.004-.007)	.005 (.004-.006)	.008 (.006-.013)	.017 (.011-.029)	.028 (.018-.048)	568
	01-02	.005 (.005-.006)	.005 (.005-.006)	.008 (.007-.010)	.013 (.011-.014)	.017 (.014-.029)	667
	03-04	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.009)	.013 (.012-.015)	.018 (.014-.024)	722
	05-06	.004 (.004-.005)	.004 (.003-.005)	.006 (.006-.007)	.011 (.009-.015)	.017 (.012-.021)	692
	07-08	.005 (.005-.006)	.005 (.004-.006)	.009 (.007-.011)	.014 (.011-.017)	.018 (.014-.041)	589
	09-10	.006 (.005-.008)	.006 (.005-.007)	.010 (.008-.012)	.018 (.013-.021)	.023 (.018-.044)	544
Non-Hispanic whites	99-00	.007 (.006-.009)	.007 (.006-.009)	.012 (.010-.015)	.021 (.017-.027)	.030 (.024-.050)	822
	01-02	.008 (.007-.009)	.007 (.006-.009)	.013 (.011-.016)	.025 (.018-.032)	.034 (.025-.051)	1132
	03-04	*	.007 (.006-.008)	.011 (.010-.013)	.019 (.015-.024)	.027 (.020-.040)	1074
	05-06	.006 (.005-.006)	.005 (.005-.006)	.009 (.008-.010)	.016 (.013-.020)	.024 (.019-.039)	1041
	07-08	.007 (.006-.009)	.006 (.005-.008)	.012 (.009-.019)	.025 (.015-.043)	.039 (.024-.081)	1095
	09-10	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.018 (.015-.024)	.028 (.021-.035)	1225

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Urinary Uranium (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.007 (.006-.008)	.007 (.006-.008)	.011 (.009-.014)	.021 (.015-.026)	.029 (.023-.037)	2502
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.020 (.013-.038)	.039 (.021-.064)	2663
Age group							
6-11 years	11-12	.009 (.007-.011)	.008 (.007-.010)	.013 (.011-.017)	.023 (.014-.031)	.031 (.018-.080)	398
	13-14	.008 (.006-.010)	.006 (.005-.009)	.012 (.009-.019)	.028 (.018-.045)	.045 (.022-.081)	402
12-19 years	11-12	.007 (.005-.009)	.006 (.005-.009)	.010 (.008-.013)	.016 (.013-.026)	.026 (.015-.059)	390
	13-14	.005 (.004-.007)	.004 (.004-.005)	.009 (.005-.015)	.021 (.011-.045)	.038 (.018-.051)	451
20 years and older	11-12	.007 (.006-.008)	.006 (.005-.008)	.011 (.009-.014)	.021 (.015-.027)	.029 (.022-.041)	1714
	13-14	.006 (.005-.007)	.005 (.004-.006)	.010 (.008-.013)	.020 (.014-.036)	.039 (.020-.065)	1810
Gender							
Males	11-12	.006 (.005-.007)	.006 (.005-.007)	.009 (.007-.013)	.017 (.012-.026)	.027 (.017-.052)	1261
	13-14	.005 (.004-.006)	.005 (.004-.005)	.009 (.006-.012)	.019 (.011-.039)	.034 (.018-.061)	1317
Females	11-12	.008 (.007-.009)	.007 (.006-.009)	.013 (.010-.016)	.022 (.020-.026)	.030 (.026-.036)	1241
	13-14	.007 (.006-.008)	.006 (.005-.007)	.011 (.009-.013)	.024 (.016-.042)	.046 (.025-.067)	1346
Race/ethnicity							
Mexican Americans	11-12	.008 (.006-.011)	.008 (.006-.011)	.013 (.010-.018)	.021 (.014-.030)	.027 (.019-.046)	317
	13-14	.009 (.007-.011)	.008 (.007-.010)	.014 (.011-.020)	.025 (.020-.042)	.042 (.025-.061)	453
Non-Hispanic blacks	11-12	.005 (.004-.006)	.005 (.004-.006)	.008 (.006-.009)	.013 (.009-.019)	.019 (.014-.030)	669
	13-14	.004 (.004-.005)	.004 (.004-.004)	.006 (.005-.007)	.011 (.008-.016)	.017 (.011-.026)	581
Non-Hispanic whites	11-12	.007 (.006-.009)	.007 (.006-.008)	.012 (.010-.016)	.022 (.018-.028)	.031 (.023-.057)	818
	13-14	.006 (.004-.008)	.005 (.004-.007)	.010 (.007-.015)	.021 (.011-.055)	.039 (.019-.082)	984
All Hispanics	11-12	.007 (.005-.008)	.007 (.005-.009)	.011 (.009-.014)	.018 (.013-.026)	.025 (.019-.034)	573
	13-14	.008 (.006-.009)	.007 (.006-.009)	.013 (.010-.018)	.023 (.019-.035)	.042 (.022-.061)	701
Asians	11-12	.007 (.006-.008)	.007 (.006-.008)	.012 (.010-.013)	.019 (.015-.032)	.033 (.018-.048)	353
	13-14	.008 (.006-.012)	.007 (.005-.011)	.014 (.009-.032)	.043 (.015-.085)	.061 (.031-.142)	292

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Uranium_BiomonitoringSummary.html

Serum Zinc (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/dL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	81.9 (80.9-82.9)	81.8 (80.8-82.9)	91.5 (89.8-93.1)	101 (99.1-104)	109 (105-112)	2329
	13-14	80.4 (78.2-82.6)	80.7 (78.4-82.9)	90.5 (88.0-93.1)	101 (97.7-104)	109 (104-113)	2519
Age group							
6-11 years	11-12	81.3 (79.4-83.2)	82.0 (79.2-83.7)	90.3 (86.3-93.4)	101 (93.7-106)	106 (101-114)	316
	13-14	79.3 (77.4-81.3)	79.4 (77.7-81.0)	88.5 (84.5-91.5)	97.4 (91.4-103)	103 (96.2-114)	339
12-19 years	11-12	83.0 (81.5-84.5)	81.9 (79.4-85.0)	94.4 (89.6-96.0)	103 (99.1-105)	106 (103-115)	366
	13-14	82.8 (80.1-85.6)	84.1 (79.8-87.6)	94.8 (89.4-98.3)	103 (100-108)	110 (102-118)	418
20 years and older	11-12	81.8 (80.7-83.0)	81.7 (80.6-82.9)	91.3 (89.3-93.4)	101 (98.6-104)	109 (105-114)	1647
	13-14	80.1 (77.9-82.5)	80.5 (78.2-82.5)	90.2 (87.3-92.9)	101 (97.0-105)	109 (103-114)	1762
Gender							
Males	11-12	84.2 (82.7-85.8)	83.9 (82.4-85.4)	94.0 (91.9-96.4)	104 (101-109)	112 (108-117)	1162
	13-14	82.6 (80.2-85.0)	83.1 (80.6-85.6)	93.3 (90.4-96.3)	105 (100-109)	113 (107-119)	1235
Females	11-12	79.8 (78.7-81.0)	79.7 (78.2-81.1)	88.5 (87.3-90.2)	99.6 (95.5-103)	105 (103-108)	1167
	13-14	78.3 (76.1-80.6)	78.7 (76.0-81.3)	87.5 (84.9-90.1)	97.5 (93.0-102)	103 (101-108)	1284
Race/ethnicity							
Mexican Americans	11-12	81.4 (77.2-85.7)	81.8 (76.4-86.4)	89.6 (86.5-96.4)	101 (94.3-110)	110 (100-119)	285
	13-14	81.0 (77.6-84.5)	80.8 (77.1-85.8)	92.1 (88.1-98.6)	102 (100-110)	113 (103-119)	431
Non-Hispanic blacks	11-12	79.7 (77.9-81.5)	79.4 (77.8-81.3)	90.9 (87.0-93.3)	101 (95.7-106)	108 (103-111)	620
	13-14	79.1 (75.8-82.5)	78.4 (74.6-83.0)	88.4 (85.8-91.8)	102 (95.1-105)	109 (103-114)	516
Non-Hispanic whites	11-12	82.8 (81.3-84.2)	82.9 (81.1-84.5)	92.2 (89.8-94.5)	102 (98.0-105)	109 (103-117)	780
	13-14	80.5 (77.9-83.2)	81.2 (78.7-83.3)	90.4 (87.5-93.3)	101 (96.8-103)	109 (102-113)	975
All Hispanics	11-12	80.4 (78.1-82.7)	80.1 (77.5-83.1)	88.8 (86.4-92.4)	100 (96.2-106)	109 (101-116)	525
	13-14	81.7 (78.3-85.2)	81.8 (78.4-85.6)	92.2 (87.3-99.5)	103 (99.9-109)	113 (104-123)	666
Asians	11-12	81.2 (79.0-83.6)	81.0 (78.6-83.7)	91.3 (88.7-95.1)	101 (97.9-107)	110 (103-114)	323
	13-14	78.4 (75.8-81.1)	78.0 (74.8-83.2)	89.7 (85.8-93.0)	100 (96.0-106)	109 (103-112)	266

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 2.9 and 2.9, respectively.

Urinary Nitrate (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	48.2 (46.2-50.3)	49.0 (46.0-52.0)	78.0 (73.0-83.0)	100 (100-130)	140 (130-150)	1617
	05-06	42.7 (39.6-46.1)	47.8 (44.4-51.2)	74.6 (69.8-79.4)	108 (101-114)	133 (125-144)	7697
	07-08	46.3 (44.6-48.1)	50.3 (48.4-52.0)	76.0 (72.7-79.1)	110 (104-116)	138 (132-146)	7629
	09-10	40.7 (38.9-42.7)	43.3 (41.1-45.8)	68.7 (65.5-72.5)	98.5 (93.4-102)	126 (114-137)	2844
Age group							
6-11 years	01-02	62.2 (53.8-71.8)	68.0 (58.0-79.0)	94.0 (84.0-100)	130 (100-160)	150 (120-380)	374
	05-06	51.2 (47.4-55.4)	54.7 (51.9-58.2)	79.2 (72.8-87.2)	113 (101-128)	141 (120-158)	1054
	07-08	55.2 (51.7-58.9)	60.2 (56.1-64.3)	84.5 (80.1-92.5)	117 (107-135)	149 (132-189)	1143
	09-10	46.8 (43.2-50.6)	50.3 (45.5-58.2)	73.2 (70.2-79.1)	98.7 (86.7-112)	119 (98.0-186)	377
12-19 years	01-02	57.4 (53.5-61.6)	66.0 (60.0-69.0)	91.0 (86.0-95.0)	120 (100-130)	150 (130-160)	827
	05-06	52.5 (48.5-56.8)	57.5 (52.3-62.6)	84.2 (79.9-88.4)	119 (111-124)	144 (129-153)	2106
	07-08	55.5 (51.5-59.7)	56.8 (51.9-61.5)	84.1 (76.2-94.5)	119 (107-133)	144 (133-162)	1135
	09-10	44.6 (41.0-48.4)	48.0 (43.3-54.9)	75.2 (70.0-79.4)	106 (91.6-119)	133 (106-163)	452
20 years and older	01-02	45.4 (43.3-47.5)	49.0 (46.0-52.0)	78.0 (73.0-83.0)	100 (100-130)	140 (130-150)	1617
	05-06	40.5 (37.4-43.9)	45.0 (41.3-48.3)	71.7 (67.1-77.4)	105 (98.0-113)	129 (122-142)	4537
	07-08	44.2 (42.5-45.9)	48.1 (46.0-49.7)	73.2 (70.1-76.5)	107 (101-113)	135 (128-146)	5351
	09-10	39.6 (37.4-41.9)	42.3 (39.4-44.8)	66.4 (62.3-71.9)	97.2 (91.9-102)	124 (113-144)	2015
Gender							
Males	01-02	57.5 (54.6-60.6)	63.0 (59.0-67.0)	89.0 (83.0-94.0)	130 (100-140)	150 (140-170)	1335
	05-06	48.4 (44.6-52.6)	52.7 (48.3-57.8)	79.4 (72.8-86.5)	110 (103-121)	136 (123-152)	3765
	07-08	51.9 (49.9-54.1)	56.1 (53.8-58.0)	79.5 (75.7-83.5)	112 (105-119)	137 (131-149)	3839
	09-10	44.9 (41.8-48.2)	46.0 (43.1-49.7)	73.3 (67.9-77.1)	105 (95.6-112)	133 (117-159)	1401
Females	01-02	40.7 (38.4-43.2)	43.0 (41.0-48.0)	72.0 (68.0-76.0)	100 (98.0-120)	130 (120-150)	1483
	05-06	37.9 (35.1-40.8)	42.0 (38.2-46.0)	69.2 (65.5-73.4)	104 (96.6-110)	130 (124-140)	3932
	07-08	41.4 (39.3-43.7)	43.9 (41.5-46.3)	71.3 (67.5-74.8)	108 (99.8-115)	138 (132-149)	3790
	09-10	37.1 (34.9-39.5)	40.3 (36.4-43.9)	65.9 (62.0-69.8)	92.2 (88.4-98.5)	117 (101-130)	1443
Race/ethnicity							
Mexican Americans	01-02	53.2 (48.7-58.2)	59.0 (52.0-66.0)	84.0 (79.0-91.0)	120 (100-150)	160 (130-180)	707
	05-06	47.8 (44.7-51.2)	52.4 (49.9-56.2)	77.9 (75.1-83.1)	113 (104-120)	148 (133-156)	1972
	07-08	48.7 (45.0-52.6)	51.9 (47.4-56.7)	75.6 (69.7-81.3)	111 (100-122)	148 (127-164)	1505
	09-10	41.3 (39.3-43.5)	43.5 (41.2-46.4)	66.4 (61.0-73.9)	92.6 (86.5-99.7)	111 (94.4-132)	611
Non-Hispanic blacks	01-02	53.8 (47.8-60.5)	58.0 (51.0-64.0)	84.0 (77.0-93.0)	120 (100-130)	140 (130-170)	680
	05-06	45.9 (42.1-50.0)	50.4 (46.6-54.9)	75.0 (68.8-80.8)	101 (95.3-110)	127 (114-148)	2078
	07-08	47.5 (45.0-50.3)	50.3 (48.6-52.5)	74.7 (71.9-77.3)	105 (97.1-116)	134 (125-150)	1707
	09-10	39.0 (36.5-41.7)	44.1 (41.6-46.3)	65.4 (61.5-69.6)	94.2 (86.6-101)	121 (101-141)	544
Non-Hispanic whites	01-02	46.3 (44.1-48.6)	51.0 (47.0-53.0)	81.0 (78.0-85.0)	120 (100-130)	140 (130-150)	1228
	05-06	41.2 (37.6-45.2)	46.2 (41.3-50.6)	73.3 (67.3-80.1)	107 (98.2-115)	129 (122-142)	3056
	07-08	45.0 (42.7-47.5)	49.2 (46.1-52.6)	75.5 (70.5-80.0)	108 (101-116)	134 (128-140)	3190
	09-10	39.8 (37.2-42.6)	42.1 (39.1-45.2)	68.4 (63.0-73.5)	95.6 (89.8-100)	119 (106-131)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 05-06, 07-08, and 09-10 are 0.7, 0.7, 0.7, and 0.7 respectively.

Urinary Nitrate (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	41.8 (39.7-44.1)	44.5 (42.3-47.2)	71.5 (68.1-76.4)	108 (99.3-116)	133 (119-156)	2467
	13-14	40.8 (38.8-42.9)	42.2 (39.6-45.7)	72.2 (67.8-78.7)	107 (101-112)	136 (123-151)	2644
Age group							
6-11 years	11-12	47.4 (43.3-52.0)	54.1 (49.2-61.3)	78.6 (74.3-84.0)	99.8 (93.2-113)	121 (104-141)	394
	13-14	44.7 (41.0-48.8)	47.3 (42.3-51.7)	79.2 (68.9-86.0)	119 (95.8-138)	151 (124-189)	398
12-19 years	11-12	43.3 (37.4-50.1)	50.4 (39.8-58.3)	71.5 (66.5-78.0)	107 (91.9-121)	135 (108-183)	384
	13-14	46.5 (40.8-53.0)	51.1 (42.5-59.3)	83.4 (72.9-89.6)	112 (92.5-120)	122 (115-134)	449
20 years and older	11-12	41.0 (38.7-43.5)	43.4 (40.8-46.2)	70.1 (66.1-75.7)	110 (98.7-117)	135 (117-164)	1689
	13-14	39.6 (37.6-41.8)	40.7 (38.2-44.1)	70.2 (64.2-76.1)	107 (101-111)	136 (120-153)	1797
Gender							
Males	11-12	46.9 (43.3-50.8)	48.4 (43.6-53.0)	76.2 (69.9-81.7)	114 (101-124)	150 (116-175)	1251
	13-14	43.6 (40.1-47.4)	45.3 (41.0-50.6)	73.1 (64.3-83.5)	108 (99.8-113)	141 (118-157)	1313
Females	11-12	37.4 (34.4-40.7)	41.2 (36.4-46.0)	67.9 (60.6-73.7)	101 (89.8-114)	120 (113-145)	1216
	13-14	38.2 (36.1-40.5)	39.2 (37.5-41.7)	71.4 (67.8-74.8)	107 (99.8-112)	134 (120-141)	1331
Race/ethnicity							
Mexican Americans	11-12	41.1 (36.9-45.8)	45.9 (40.4-51.3)	65.9 (61.8-70.9)	89.8 (78.4-108)	112 (89.8-159)	313
	13-14	42.0 (36.0-49.0)	45.3 (35.4-56.6)	72.0 (61.7-83.4)	111 (93.0-134)	136 (111-163)	451
Non-Hispanic blacks	11-12	44.9 (41.5-48.6)	47.6 (41.6-52.3)	73.8 (67.8-79.8)	107 (97.1-117)	139 (116-150)	663
	13-14	46.4 (42.4-50.9)	50.0 (44.9-54.4)	73.6 (66.4-80.6)	105 (92.1-119)	135 (107-172)	574
Non-Hispanic whites	11-12	41.0 (38.0-44.1)	43.6 (39.6-47.9)	71.9 (66.7-78.0)	110 (96.1-117)	132 (115-169)	810
	13-14	39.3 (36.6-42.3)	40.2 (37.6-43.9)	71.9 (64.5-80.9)	107 (95.9-111)	128 (114-145)	976
All Hispanics	11-12	41.0 (36.7-45.7)	44.4 (40.2-48.9)	67.2 (60.9-73.9)	95.3 (82.9-113)	120 (97.0-159)	566
	13-14	41.1 (36.8-45.8)	44.4 (39.0-50.5)	70.0 (62.7-76.7)	107 (94.2-116)	138 (120-153)	699
Asians	11-12	50.2 (43.7-57.6)	50.8 (45.8-57.5)	84.0 (72.1-91.9)	146 (121-171)	238 (142-380)	341
	13-14	44.4 (38.9-50.7)	45.2 (36.6-53.0)	91.6 (76.2-99.5)	150 (114-183)	189 (139-282)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.7 and 0.7, respectively.

Urinary Nitrate (creatinine corrected) (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	49.8 (47.7-51.9)	46.9 (44.2-49.6)	63.8 (61.2-67.7)	90.9 (84.3-98.8)	120 (111-128)	1616
	05-06	42.6 (40.2-45.1)	42.4 (40.1-44.7)	59.7 (55.8-64.1)	85.5 (81.3-91.3)	113 (106-118)	7697
	07-08	47.7 (45.9-49.7)	46.0 (44.0-48.3)	66.5 (62.4-70.5)	98.0 (92.3-102)	127 (119-135)	7628
	09-10	43.7 (42.1-45.3)	42.3 (41.0-43.7)	60.2 (57.6-63.0)	88.5 (83.3-96.1)	115 (104-127)	2843
Age group							
6-11 years	01-02	72.0 (66.1-78.4)	66.0 (62.6-70.4)	87.0 (80.2-97.7)	129 (96.5-144)	144 (130-235)	374
	05-06	60.8 (57.4-64.5)	57.3 (53.6-60.6)	76.5 (70.9-82.1)	109 (95.0-123)	134 (121-164)	1054
	07-08	70.2 (65.7-74.9)	65.9 (62.4-69.5)	89.0 (83.2-96.5)	128 (112-152)	173 (140-216)	1143
	09-10	64.2 (58.8-70.0)	60.2 (56.3-63.3)	80.7 (68.9-96.1)	107 (96.1-124)	127 (105-202)	376
12-19 years	01-02	44.8 (43.4-46.2)	43.8 (42.6-45.0)	56.2 (52.2-59.7)	73.2 (65.2-85.1)	93.4 (79.0-104)	826
	05-06	39.8 (37.8-41.9)	38.1 (36.3-40.3)	51.8 (47.7-56.0)	70.6 (63.1-78.8)	88.9 (79.4-103)	2106
	07-08	43.4 (41.3-45.5)	40.5 (38.6-43.5)	56.0 (52.7-59.2)	76.6 (69.0-86.2)	98.0 (85.4-121)	1134
	09-10	41.7 (39.3-44.4)	39.7 (38.3-41.7)	54.0 (48.4-57.4)	73.4 (61.0-86.1)	88.5 (71.0-117)	452
20 years and older	01-02	48.3 (45.9-50.9)	46.9 (44.2-49.6)	63.8 (61.2-67.7)	90.9 (84.3-98.8)	120 (111-128)	1616
	05-06	41.4 (38.9-43.9)	41.0 (38.8-43.7)	58.6 (54.8-63.1)	85.3 (80.2-91.0)	111 (105-116)	4537
	07-08	46.5 (44.6-48.4)	44.7 (42.5-47.0)	65.0 (60.7-69.2)	96.1 (90.0-102)	125 (117-132)	5351
	09-10	42.2 (40.3-44.2)	41.0 (39.6-42.5)	58.6 (55.4-62.2)	87.7 (81.0-98.5)	116 (103-133)	2015
Gender							
Males	01-02	47.6 (44.7-50.7)	46.1 (43.4-48.7)	61.3 (58.0-64.5)	86.7 (77.1-97.3)	114 (97.3-125)	1335
	05-06	40.1 (37.5-42.9)	39.5 (36.7-42.8)	55.3 (51.6-59.5)	77.2 (70.7-83.0)	95.9 (89.6-102)	3765
	07-08	44.6 (42.8-46.6)	42.8 (40.7-45.1)	60.6 (58.1-64.4)	85.6 (81.1-91.3)	111 (101-121)	3839
	09-10	41.0 (38.9-43.1)	39.1 (37.6-40.6)	54.6 (52.2-58.1)	83.3 (74.6-90.0)	103 (96.1-122)	1400
Females	01-02	51.9 (49.9-54.1)	51.2 (48.4-53.0)	69.1 (66.7-71.2)	100 (91.7-111)	129 (118-140)	1481
	05-06	45.1 (42.8-47.6)	45.0 (42.4-47.4)	64.4 (60.0-69.6)	96.8 (87.8-105)	128 (117-134)	3932
	07-08	51.0 (48.9-53.2)	50.0 (47.5-52.7)	72.3 (67.8-76.8)	107 (101-116)	146 (129-163)	3789
	09-10	46.5 (44.4-48.7)	46.5 (44.8-48.4)	64.2 (60.5-69.4)	96.6 (83.3-106)	121 (106-152)	1443
Race/ethnicity							
Mexican Americans	01-02	50.9 (45.7-56.8)	48.1 (44.9-51.4)	67.4 (60.3-77.6)	97.3 (85.7-117)	135 (100-161)	707
	05-06	44.6 (42.6-46.7)	44.0 (42.2-45.3)	60.4 (58.1-62.9)	89.9 (82.0-95.4)	120 (111-128)	1972
	07-08	48.7 (45.1-52.7)	47.0 (43.5-50.5)	64.8 (59.7-69.9)	93.5 (88.9-101)	128 (108-156)	1505
	09-10	43.4 (40.5-46.5)	42.2 (39.7-45.9)	58.2 (54.7-61.3)	86.2 (77.1-92.5)	104 (90.8-122)	611
Non-Hispanic blacks	01-02	38.7 (36.3-41.3)	38.0 (34.6-41.3)	53.5 (50.3-57.4)	70.3 (64.9-79.3)	91.7 (78.9-100)	679
	05-06	32.9 (30.9-35.0)	31.9 (29.8-34.1)	45.4 (41.5-49.6)	64.0 (60.1-68.0)	81.2 (75.3-89.6)	2078
	07-08	35.9 (34.2-37.7)	34.8 (33.3-36.6)	49.0 (44.8-53.6)	69.1 (63.5-77.4)	87.8 (78.1-97.4)	1706
	09-10	31.4 (28.9-34.0)	32.2 (29.7-34.5)	43.3 (40.8-47.3)	59.9 (54.8-69.7)	77.1 (62.2-98.3)	543
Non-Hispanic whites	01-02	51.4 (49.4-53.4)	49.1 (46.9-51.5)	66.9 (64.2-69.4)	95.2 (87.7-100)	124 (115-132)	1227
	05-06	43.7 (40.8-46.8)	43.9 (40.8-46.8)	61.4 (56.5-66.2)	85.5 (80.6-91.9)	110 (102-116)	3056
	07-08	49.0 (46.7-51.4)	47.4 (44.9-50.5)	68.2 (63.3-73.1)	98.3 (91.2-105)	126 (118-135)	3190
	09-10	44.7 (42.7-46.9)	43.8 (41.5-46.1)	62.0 (58.6-64.7)	87.7 (83.3-96.1)	106 (103-117)	1215

Urinary Nitrate (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	47.8 (45.3-50.4)	46.0 (43.7-49.2)	67.4 (62.6-71.5)	103 (88.7-117)	137 (117-153)	2465
	13-14	47.2 (45.2-49.4)	46.3 (43.2-49.4)	66.2 (62.9-70.2)	97.3 (91.0-104)	123 (116-133)	2643
Age group							
6-11 years	11-12	68.0 (63.3-73.1)	66.4 (60.9-68.7)	87.3 (81.2-95.6)	122 (110-132)	144 (124-156)	393
	13-14	67.1 (62.3-72.2)	63.2 (59.4-67.1)	83.6 (72.4-95.2)	118 (99.1-145)	159 (110-230)	398
12-19 years	11-12	42.2 (39.6-44.9)	41.5 (38.7-43.8)	54.0 (51.2-57.7)	69.1 (63.6-77.1)	86.9 (69.1-104)	384
	13-14	42.2 (39.7-44.8)	41.9 (37.2-44.7)	52.8 (47.9-58.1)	69.2 (61.0-82.0)	85.6 (72.6-107)	449
20 years and older	11-12	46.8 (44.0-49.8)	44.9 (41.7-47.9)	66.8 (60.5-73.0)	105 (87.4-122)	142 (116-165)	1688
	13-14	46.3 (44.2-48.5)	45.2 (42.5-48.2)	66.0 (62.8-70.2)	97.4 (90.5-105)	123 (113-136)	1796
Gender							
Males	11-12	44.1 (41.8-46.6)	43.8 (40.8-45.9)	59.8 (57.0-62.4)	87.1 (76.9-98.4)	109 (98.4-120)	1250
	13-14	43.7 (41.4-46.2)	42.5 (38.9-45.6)	59.8 (55.7-65.5)	84.0 (78.6-94.3)	110 (99.1-128)	1312
Females	11-12	51.6 (47.9-55.5)	50.0 (45.8-54.0)	76.5 (68.9-85.1)	120 (98.1-143)	151 (132-170)	1215
	13-14	50.9 (48.2-53.7)	50.5 (47.1-53.5)	71.6 (67.8-75.7)	107 (95.6-113)	135 (118-156)	1331
Race/ethnicity							
Mexican Americans	11-12	46.4 (41.0-52.6)	43.6 (38.9-49.7)	62.4 (52.7-78.0)	86.4 (72.1-124)	110 (84.0-203)	313
	13-14	48.1 (43.4-53.2)	48.3 (46.0-50.9)	67.3 (62.1-72.0)	99.3 (83.0-116)	128 (100-169)	451
Non-Hispanic blacks	11-12	35.0 (33.2-36.9)	34.3 (32.1-36.3)	47.5 (44.0-51.3)	69.2 (62.2-78.1)	89.3 (77.1-102)	663
	13-14	35.5 (33.4-37.8)	33.8 (32.0-35.9)	46.2 (43.5-49.7)	67.3 (60.4-75.0)	87.3 (76.6-95.6)	574
Non-Hispanic whites	11-12	50.1 (47.2-53.2)	49.0 (45.7-52.3)	68.9 (63.8-79.4)	107 (91.1-129)	144 (121-154)	808
	13-14	48.6 (46.3-50.9)	47.9 (44.8-51.4)	67.8 (62.9-72.5)	97.4 (89.5-105)	122 (109-136)	975
All Hispanics	11-12	45.8 (42.4-49.5)	44.1 (41.7-46.2)	61.5 (55.4-69.3)	85.2 (78.5-95.6)	115 (86.4-159)	566
	13-14	45.9 (43.1-48.9)	46.1 (43.1-48.3)	65.5 (61.0-68.6)	95.4 (85.0-105)	126 (105-137)	699
Asians	11-12	67.2 (61.9-72.9)	62.9 (56.3-68.8)	106 (93.3-118)	178 (153-216)	247 (203-318)	341
	13-14	69.6 (62.2-78.0)	62.7 (52.5-76.8)	101 (85.2-132)	168 (140-194)	200 (173-261)	291

Urinary Perchlorate (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	3.72 (3.46-4.01)	3.70 (3.40-3.90)	6.20 (5.60-6.90)	10.0 (8.90-12.0)	14.0 (12.0-18.0)	1618
	03-04	3.39 (3.08-3.73)	3.50 (3.00-4.00)	5.80 (5.20-6.70)	10.0 (8.80-12.0)	14.0 (13.0-16.0)	2522
	05-06	3.47 (3.20-3.76)	3.62 (3.35-3.98)	6.10 (5.67-6.52)	9.76 (9.19-10.5)	13.4 (12.4-14.6)	7697
	07-08	3.88 (3.60-4.18)	3.96 (3.59-4.30)	7.10 (6.50-7.74)	12.0 (11.2-13.0)	17.3 (16.1-18.8)	7629
	09-10	3.38 (3.19-3.58)	3.44 (3.17-3.61)	5.95 (5.66-6.35)	10.1 (9.20-10.6)	13.8 (12.2-15.4)	2844
Age group 6-11 years	01-02	5.19 (4.44-6.05)	5.50 (4.60-6.70)	8.50 (7.20-10.0)	13.0 (9.80-20.0)	20.0 (13.0-24.0)	374
	03-04	4.54 (3.85-5.36)	4.80 (4.20-5.50)	8.30 (6.00-10.0)	14.0 (9.20-17.0)	17.0 (12.0-30.0)	314
	05-06	4.64 (4.15-5.18)	4.81 (4.26-5.38)	7.67 (6.71-8.60)	11.6 (10.0-12.7)	14.1 (12.4-16.3)	1054
	07-08	4.88 (4.31-5.53)	4.86 (4.22-5.93)	9.11 (7.84-10.3)	14.4 (12.1-16.9)	18.9 (16.1-23.2)	1143
	09-10	4.47 (3.88-5.15)	5.03 (3.84-5.98)	7.98 (6.86-9.68)	12.2 (10.1-15.7)	16.2 (11.2-24.5)	377
12-19 years	01-02	4.00 (3.62-4.42)	4.60 (4.00-5.00)	7.10 (6.60-7.70)	10.0 (9.70-12.0)	14.0 (12.0-18.0)	828
	03-04	3.81 (3.35-4.33)	4.00 (3.40-4.60)	6.70 (5.80-7.40)	10.0 (8.20-13.0)	14.0 (10.0-19.0)	721
	05-06	4.14 (3.77-4.53)	4.25 (3.94-4.65)	7.00 (6.41-7.69)	10.9 (9.71-12.4)	15.6 (12.4-17.9)	2106
	07-08	4.50 (4.06-4.97)	4.73 (4.39-5.05)	7.93 (6.89-8.89)	13.0 (11.1-15.4)	17.7 (15.8-20.2)	1135
	09-10	3.36 (2.89-3.91)	3.33 (2.86-3.98)	6.21 (5.22-7.82)	10.7 (8.58-13.2)	15.1 (12.0-19.4)	452
20 years and older	01-02	3.53 (3.24-3.84)	3.70 (3.40-3.90)	6.20 (5.60-6.90)	10.0 (8.90-12.0)	14.0 (12.0-18.0)	1618
	03-04	3.21 (2.89-3.56)	3.40 (2.80-3.80)	5.50 (4.90-6.40)	9.50 (8.30-10.0)	13.0 (12.0-15.0)	1487
	05-06	3.27 (3.01-3.55)	3.42 (3.14-3.72)	5.75 (5.33-6.21)	9.38 (8.73-9.86)	13.1 (12.2-14.5)	4537
	07-08	3.70 (3.43-3.99)	3.69 (3.42-4.09)	6.75 (6.09-7.38)	11.6 (10.8-12.7)	16.8 (15.4-18.7)	5351
	09-10	3.29 (3.08-3.51)	3.28 (3.00-3.59)	5.68 (5.47-6.05)	9.55 (8.72-10.3)	13.3 (11.2-15.2)	2015
Gender Males	01-02	4.41 (4.13-4.70)	4.60 (4.40-4.80)	7.40 (6.70-8.30)	12.0 (10.0-13.0)	15.0 (12.0-20.0)	1335
	03-04	3.95 (3.56-4.37)	4.10 (3.60-4.60)	6.70 (5.90-7.90)	12.0 (9.70-13.0)	15.0 (14.0-18.0)	1229
	05-06	3.93 (3.64-4.25)	4.07 (3.77-4.38)	6.50 (6.11-6.92)	10.4 (9.65-11.6)	14.7 (13.2-16.3)	3765
	07-08	4.40 (4.13-4.70)	4.42 (4.12-4.78)	7.90 (7.16-8.46)	13.3 (12.0-14.4)	18.6 (17.0-19.7)	3839
	09-10	3.66 (3.40-3.95)	3.74 (3.36-4.00)	6.21 (5.70-6.65)	10.2 (9.10-11.2)	14.6 (11.9-18.2)	1401
Females	01-02	3.17 (2.89-3.48)	3.30 (2.80-3.60)	5.70 (5.20-6.30)	9.70 (8.60-12.0)	14.0 (12.0-18.0)	1485
	03-04	2.93 (2.62-3.28)	3.00 (2.60-3.40)	5.10 (4.60-5.80)	8.60 (7.20-10.0)	12.0 (9.20-16.0)	1293
	05-06	3.08 (2.80-3.38)	3.24 (2.96-3.51)	5.55 (5.14-6.07)	9.20 (8.22-10.3)	12.4 (11.3-14.2)	3932
	07-08	3.42 (3.11-3.76)	3.44 (3.10-3.79)	6.41 (5.95-7.01)	10.8 (10.0-12.0)	16.0 (14.1-17.9)	3790
	09-10	3.13 (2.93-3.34)	3.11 (2.83-3.37)	5.83 (5.36-6.28)	9.73 (8.44-10.6)	13.2 (11.0-15.4)	1443

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, & 07-08, and 09-10 are 0.05, 0.05, & 0.05, and 0.05 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Perchlorate (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	4.23 (3.65-4.90)	4.60 (3.90-5.20)	7.40 (6.10-8.80)	13.0 (9.90-14.0)	15.0 (13.0-19.0)	708
	03-04	3.96 (3.63-4.32)	4.20 (3.70-4.60)	6.50 (5.60-7.90)	12.0 (9.50-13.0)	16.0 (13.0-18.0)	617
	05-06	4.02 (3.77-4.28)	4.16 (3.84-4.46)	6.93 (6.62-7.26)	11.3 (10.4-12.0)	15.7 (14.6-16.8)	1972
	07-08	4.20 (3.95-4.46)	4.38 (4.08-4.65)	7.32 (6.73-7.95)	12.1 (10.9-14.0)	16.7 (15.0-17.7)	1505
	09-10	3.98 (3.51-4.51)	3.99 (3.45-4.54)	7.27 (6.06-8.20)	11.3 (9.97-13.4)	17.2 (12.0-24.5)	611
Non-Hispanic blacks	01-02	3.69 (3.22-4.23)	3.90 (3.30-4.30)	6.20 (5.30-7.30)	9.70 (8.20-13.0)	16.0 (12.0-21.0)	681
	03-04	3.38 (3.05-3.74)	3.40 (3.00-3.70)	5.70 (4.80-6.60)	9.00 (7.90-12.0)	14.0 (9.80-18.0)	652
	05-06	3.48 (3.19-3.80)	3.54 (3.24-3.94)	5.95 (5.33-6.65)	9.99 (9.02-11.0)	14.4 (12.8-15.7)	2078
	07-08	3.82 (3.37-4.33)	3.82 (3.37-4.48)	6.96 (6.18-7.97)	12.0 (10.6-13.8)	17.2 (14.3-20.6)	1707
	09-10	2.98 (2.74-3.26)	2.94 (2.64-3.27)	5.31 (4.88-5.99)	9.06 (7.90-10.2)	12.7 (9.23-17.3)	544
Non-Hispanic whites	01-02	3.70 (3.35-4.08)	3.90 (3.60-4.30)	6.60 (6.00-7.40)	10.0 (9.20-12.0)	15.0 (12.0-19.0)	1228
	03-04	3.43 (3.04-3.86)	3.50 (2.90-4.20)	5.90 (5.10-7.10)	9.90 (8.50-12.0)	14.0 (12.0-16.0)	1092
	05-06	3.42 (3.08-3.80)	3.59 (3.23-4.04)	6.05 (5.52-6.55)	9.62 (8.90-10.5)	13.2 (11.9-14.8)	3056
	07-08	3.84 (3.52-4.18)	3.93 (3.48-4.36)	7.07 (6.37-7.77)	11.7 (10.8-12.7)	16.8 (15.3-18.4)	3190
	09-10	3.40 (3.21-3.61)	3.48 (3.17-3.68)	5.94 (5.60-6.40)	9.69 (8.78-10.3)	13.6 (11.2-15.5)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, & 07-08, and 09-10 are 0.05, 0.05, & 0.05, and 0.05 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Perchlorate (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.96 (2.79-3.14)	3.01 (2.82-3.24)	5.46 (5.11-5.71)	9.11 (8.46-9.78)	12.8 (11.4-14.2)	2467
	13-14	2.63 (2.44-2.83)	2.62 (2.40-2.83)	4.76 (4.51-5.08)	7.92 (7.26-8.57)	10.6 (9.43-11.9)	2644
Age group							
6-11 years	11-12	3.89 (3.45-4.39)	4.31 (3.67-4.86)	6.41 (5.88-7.17)	10.6 (8.97-12.8)	14.9 (12.7-18.5)	394
	13-14	3.37 (2.96-3.84)	3.56 (2.95-4.14)	5.61 (4.95-7.08)	9.38 (7.52-10.6)	12.1 (9.70-21.2)	398
12-19 years	11-12	2.77 (2.33-3.30)	2.82 (2.39-3.60)	5.15 (4.28-5.71)	7.54 (6.40-8.68)	10.8 (7.54-13.3)	384
	13-14	2.86 (2.42-3.37)	2.91 (2.47-3.45)	5.11 (3.96-6.69)	9.43 (7.11-10.9)	13.9 (9.83-24.0)	449
20 years and older	11-12	2.90 (2.71-3.10)	2.95 (2.75-3.14)	5.30 (4.94-5.73)	9.16 (8.46-10.3)	12.8 (11.2-14.6)	1689
	13-14	2.53 (2.34-2.73)	2.44 (2.25-2.76)	4.57 (4.22-4.93)	7.67 (6.94-8.29)	10.2 (8.93-11.7)	1797
Gender							
Males	11-12	3.32 (3.05-3.61)	3.43 (3.22-3.67)	5.79 (5.45-6.58)	10.3 (8.70-10.8)	13.3 (11.7-14.6)	1251
	13-14	2.73 (2.47-3.03)	2.85 (2.58-3.13)	4.84 (4.53-5.33)	8.18 (6.97-9.43)	11.0 (9.87-13.4)	1313
Females	11-12	2.65 (2.44-2.87)	2.64 (2.40-2.96)	4.86 (4.20-5.52)	8.21 (7.78-8.86)	11.7 (10.6-13.2)	1216
	13-14	2.53 (2.36-2.70)	2.40 (2.21-2.62)	4.67 (4.14-5.21)	7.81 (7.00-8.45)	9.83 (8.73-11.7)	1331
Race/ethnicity							
Mexican Americans	11-12	3.46 (2.97-4.02)	3.47 (2.83-3.90)	6.06 (4.99-7.38)	10.5 (7.19-16.4)	15.3 (10.1-24.2)	313
	13-14	3.02 (2.67-3.42)	3.08 (2.70-3.42)	4.95 (4.55-5.75)	8.69 (6.98-11.5)	12.6 (8.71-18.8)	451
Non-Hispanic blacks	11-12	2.92 (2.69-3.16)	2.91 (2.64-3.27)	5.48 (4.72-5.96)	9.02 (8.11-10.8)	12.2 (11.3-14.7)	663
	13-14	2.75 (2.47-3.06)	2.81 (2.49-3.06)	4.76 (4.17-5.42)	7.78 (6.82-8.59)	11.9 (7.92-15.1)	574
Non-Hispanic whites	11-12	2.93 (2.75-3.13)	3.07 (2.81-3.31)	5.44 (5.04-5.73)	8.70 (8.05-10.4)	12.7 (10.8-14.2)	810
	13-14	2.57 (2.39-2.77)	2.52 (2.29-2.81)	4.73 (4.37-5.11)	7.70 (7.02-8.29)	9.54 (8.80-10.8)	976
All Hispanics	11-12	3.15 (2.81-3.52)	2.99 (2.52-3.50)	5.49 (4.67-6.27)	9.51 (7.38-11.6)	13.2 (10.4-18.4)	566
	13-14	2.84 (2.51-3.21)	2.82 (2.56-3.16)	4.84 (4.39-5.72)	8.67 (7.00-11.0)	12.6 (9.82-18.8)	699
Asians	11-12	2.81 (2.44-3.24)	2.82 (2.36-3.22)	5.48 (4.82-6.39)	9.48 (7.86-12.3)	15.1 (10.3-23.6)	341
	13-14	2.42 (1.97-2.97)	2.36 (1.76-3.27)	5.02 (3.91-6.25)	9.29 (7.70-10.4)	12.1 (10.2-14.0)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.05 and 0.05, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Perchlorate (creatinine corrected) (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	3.74 (3.51-3.99)	3.44 (3.18-3.79)	5.70 (5.27-6.18)	9.47 (7.88-10.8)	12.9 (10.7-14.9)	1617
	03-04	3.31 (3.04-3.59)	3.18 (2.90-3.45)	5.19 (4.80-5.55)	8.86 (7.69-10.0)	12.4 (11.2-14.5)	2519
	05-06	3.46 (3.27-3.66)	3.37 (3.17-3.59)	5.42 (5.08-5.86)	8.56 (8.19-9.17)	11.6 (10.4-13.4)	7697
	07-08	4.00 (3.69-4.33)	3.89 (3.59-4.26)	6.59 (6.10-7.13)	10.9 (10.1-11.8)	15.7 (14.6-16.8)	7628
	09-10	3.62 (3.48-3.77)	3.51 (3.37-3.72)	5.84 (5.57-6.10)	9.42 (8.73-10.3)	13.1 (11.4-14.1)	2843
Age group 6-11 years	01-02	6.01 (5.49-6.57)	6.10 (5.37-6.67)	8.68 (7.72-10.6)	13.6 (11.6-17.3)	18.6 (13.7-23.7)	374
	03-04	5.52 (4.86-6.28)	5.34 (4.92-5.78)	7.64 (6.67-10.5)	13.5 (9.66-21.3)	21.3 (12.0-46.9)	314
	05-06	5.51 (5.06-6.00)	5.66 (5.08-6.22)	8.39 (7.61-9.25)	12.3 (10.3-13.6)	15.4 (14.3-17.0)	1054
	07-08	6.21 (5.52-6.99)	6.34 (5.56-7.10)	9.78 (8.63-11.3)	14.7 (13.3-16.0)	20.6 (16.4-25.0)	1143
	09-10	6.14 (5.51-6.84)	6.10 (5.40-6.94)	10.3 (7.79-13.3)	16.2 (14.1-17.6)	20.2 (15.8-25.5)	376
12-19 years	01-02	3.10 (2.77-3.46)	3.04 (2.67-3.53)	4.75 (4.20-5.48)	7.50 (6.82-8.26)	10.4 (7.90-14.1)	827
	03-04	2.85 (2.59-3.14)	2.83 (2.62-3.17)	4.39 (3.88-4.67)	6.63 (5.56-7.82)	8.62 (7.24-11.4)	719
	05-06	3.14 (2.89-3.41)	3.17 (2.87-3.40)	4.86 (4.32-5.41)	7.30 (6.40-8.43)	9.54 (8.46-11.0)	2106
	07-08	3.52 (3.27-3.78)	3.43 (3.07-3.80)	5.62 (5.13-6.11)	8.84 (7.70-9.73)	12.6 (10.4-15.8)	1134
	09-10	3.15 (2.87-3.45)	3.05 (2.75-3.50)	4.79 (4.14-5.74)	8.20 (6.29-8.96)	9.70 (8.73-11.0)	452
20 years and older	01-02	3.64 (3.37-3.93)	3.44 (3.18-3.79)	5.70 (5.27-6.18)	9.47 (7.88-10.8)	12.9 (10.7-14.9)	1617
	03-04	3.18 (2.90-3.49)	3.02 (2.74-3.33)	4.94 (4.53-5.35)	8.64 (7.18-10.0)	11.7 (10.3-15.2)	1486
	05-06	3.34 (3.15-3.53)	3.24 (3.08-3.45)	5.12 (4.82-5.45)	8.24 (7.67-8.64)	11.4 (10.0-13.0)	4537
	07-08	3.88 (3.57-4.22)	3.77 (3.49-4.14)	6.35 (5.85-6.91)	10.5 (9.64-11.5)	15.4 (13.6-16.9)	5351
	09-10	3.50 (3.33-3.68)	3.44 (3.23-3.61)	5.59 (5.20-5.94)	8.91 (7.93-9.70)	12.2 (10.5-13.7)	2015
Gender Males	01-02	3.57 (3.36-3.79)	3.42 (3.17-3.67)	5.62 (5.22-6.12)	9.24 (7.87-10.3)	12.2 (10.9-13.3)	1335
	03-04	3.23 (2.96-3.52)	3.09 (2.83-3.33)	5.00 (4.60-5.55)	8.00 (6.86-10.2)	12.5 (10.2-15.3)	1228
	05-06	3.25 (3.08-3.44)	3.16 (2.99-3.36)	4.98 (4.71-5.37)	8.07 (7.60-8.58)	11.0 (10.0-12.9)	3765
	07-08	3.78 (3.47-4.12)	3.64 (3.28-4.03)	6.29 (5.72-6.85)	10.3 (9.28-11.3)	14.4 (13.1-15.5)	3839
	09-10	3.34 (3.19-3.51)	3.25 (2.98-3.48)	5.21 (4.95-5.77)	9.08 (7.91-9.90)	13.1 (10.4-15.0)	1400
Females	01-02	3.92 (3.57-4.30)	3.79 (3.36-4.31)	6.33 (5.65-7.00)	10.6 (8.64-12.6)	14.0 (11.8-17.0)	1483
	03-04	3.38 (3.02-3.78)	3.28 (2.90-3.61)	5.24 (4.73-6.00)	9.40 (7.24-11.4)	12.4 (10.7-15.2)	1291
	05-06	3.67 (3.43-3.93)	3.58 (3.31-3.91)	5.86 (5.39-6.19)	9.21 (8.35-9.77)	12.1 (10.5-14.5)	3932
	07-08	4.22 (3.90-4.56)	4.16 (3.81-4.55)	6.89 (6.40-7.54)	11.5 (10.4-12.6)	16.6 (14.5-18.6)	3789
	09-10	3.92 (3.71-4.13)	3.89 (3.68-4.07)	6.16 (5.83-6.74)	9.58 (8.68-10.7)	13.2 (10.8-16.1)	1443

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Perchlorate (creatinine corrected) (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	3.96 (3.39-4.63)	3.71 (3.15-4.69)	6.18 (5.06-8.13)	10.9 (8.78-14.0)	15.3 (12.2-18.6)	708
	03-04	3.59 (3.32-3.88)	3.45 (3.10-3.68)	5.69 (4.82-6.45)	9.77 (8.00-11.2)	13.5 (11.2-20.0)	616
	05-06	3.75 (3.56-3.95)	3.60 (3.42-3.81)	5.97 (5.53-6.48)	9.83 (9.19-10.4)	12.7 (11.3-14.5)	1972
	07-08	4.20 (3.96-4.46)	4.17 (3.81-4.58)	6.95 (6.33-7.73)	11.8 (10.4-12.3)	15.7 (14.4-17.6)	1505
	09-10	4.18 (3.73-4.69)	4.09 (3.68-4.53)	6.94 (5.71-7.74)	10.3 (8.91-13.3)	16.2 (11.9-19.8)	611
Non-Hispanic blacks	01-02	2.66 (2.35-3.01)	2.66 (2.22-2.97)	4.24 (3.69-5.20)	7.18 (6.17-8.80)	11.0 (8.73-12.7)	680
	03-04	2.33 (2.11-2.57)	2.24 (2.02-2.47)	3.60 (3.22-4.13)	6.54 (4.91-8.47)	9.02 (6.84-11.8)	651
	05-06	2.50 (2.32-2.69)	2.40 (2.24-2.61)	3.97 (3.69-4.26)	6.71 (6.30-7.13)	9.41 (8.53-10.4)	2078
	07-08	2.89 (2.60-3.21)	2.76 (2.47-3.17)	4.92 (4.36-5.54)	8.63 (7.43-9.78)	11.8 (10.6-13.6)	1706
	09-10	2.40 (2.19-2.63)	2.35 (2.11-2.55)	3.81 (3.60-4.18)	6.31 (5.58-6.94)	8.31 (6.69-10.6)	543
Non-Hispanic whites	01-02	3.95 (3.64-4.29)	3.73 (3.39-4.22)	6.19 (5.73-6.64)	10.0 (8.67-11.2)	13.3 (11.8-16.0)	1227
	03-04	3.53 (3.16-3.94)	3.35 (3.01-3.68)	5.29 (4.81-5.96)	9.23 (7.61-11.0)	12.8 (11.0-16.5)	1091
	05-06	3.63 (3.36-3.91)	3.51 (3.20-3.85)	5.60 (5.10-6.10)	8.58 (7.98-9.42)	11.8 (10.0-14.3)	3056
	07-08	4.17 (3.83-4.54)	4.06 (3.71-4.52)	6.63 (6.18-7.23)	10.8 (9.86-11.8)	15.5 (14.0-16.8)	3190
	09-10	3.82 (3.66-3.99)	3.67 (3.50-3.83)	5.98 (5.69-6.26)	9.40 (8.73-10.2)	12.9 (10.8-14.1)	1215

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Perchlorate (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.38 (3.17-3.60)	3.28 (2.99-3.60)	5.55 (5.21-5.92)	9.20 (8.31-10.1)	14.7 (11.1-17.4)	2465
	13-14	3.04 (2.80-3.30)	2.98 (2.76-3.24)	4.89 (4.56-5.37)	7.96 (7.25-8.67)	10.7 (9.68-12.4)	2643
Age group							
6-11 years	11-12	5.56 (5.05-6.12)	5.25 (4.75-5.95)	8.57 (7.57-9.95)	14.3 (10.4-17.4)	18.0 (13.8-27.3)	393
	13-14	5.06 (4.43-5.76)	4.83 (3.90-5.66)	7.71 (6.31-9.13)	11.0 (9.14-15.4)	15.4 (11.5-28.3)	398
12-19 years	11-12	2.70 (2.50-2.91)	2.87 (2.46-3.22)	3.92 (3.80-4.14)	5.73 (4.55-7.76)	8.14 (5.97-8.43)	384
	13-14	2.59 (2.32-2.89)	2.41 (2.05-2.74)	4.06 (3.34-4.56)	6.33 (4.96-8.11)	8.66 (7.05-12.0)	449
20 years and older	11-12	3.31 (3.07-3.56)	3.16 (2.85-3.54)	5.53 (5.16-5.88)	9.16 (8.03-10.2)	14.8 (10.1-18.8)	1688
	13-14	2.95 (2.72-3.20)	2.92 (2.72-3.19)	4.71 (4.45-5.21)	7.59 (6.77-8.35)	10.4 (9.02-11.7)	1796
Gender							
Males	11-12	3.12 (2.84-3.42)	2.99 (2.64-3.34)	4.84 (4.41-5.41)	8.38 (7.08-9.92)	14.7 (9.56-20.0)	1250
	13-14	2.74 (2.51-2.99)	2.65 (2.32-2.91)	4.48 (4.00-4.81)	7.09 (6.32-8.25)	10.6 (8.16-13.1)	1312
Females	11-12	3.64 (3.41-3.89)	3.61 (3.18-3.96)	6.10 (5.66-6.45)	9.86 (8.80-10.9)	14.7 (11.6-17.7)	1215
	13-14	3.36 (3.08-3.67)	3.36 (3.06-3.60)	5.54 (4.86-5.92)	8.59 (7.75-9.45)	11.4 (10.0-13.1)	1331
Race/ethnicity							
Mexican Americans	11-12	3.90 (3.21-4.75)	3.67 (3.17-4.42)	6.31 (5.16-7.92)	10.9 (8.38-14.4)	17.8 (11.7-28.1)	313
	13-14	3.46 (3.09-3.87)	3.24 (2.84-3.76)	5.57 (4.61-6.31)	9.16 (7.57-11.6)	12.4 (9.27-18.1)	451
Non-Hispanic blacks	11-12	2.28 (2.10-2.46)	2.12 (1.99-2.31)	3.74 (3.20-4.03)	6.79 (5.15-8.44)	9.35 (7.57-12.2)	663
	13-14	2.10 (1.86-2.37)	1.92 (1.81-2.24)	3.39 (3.07-3.92)	5.42 (4.81-7.36)	9.21 (6.46-15.5)	574
Non-Hispanic whites	11-12	3.58 (3.36-3.81)	3.50 (3.16-3.82)	5.72 (5.28-6.10)	9.22 (8.19-10.3)	14.8 (10.2-17.7)	808
	13-14	3.17 (3.00-3.36)	3.13 (2.91-3.34)	4.94 (4.63-5.56)	7.88 (7.08-8.49)	10.4 (9.45-11.4)	975
All Hispanics	11-12	3.52 (2.95-4.20)	3.31 (2.68-4.11)	5.83 (4.67-7.08)	9.91 (8.03-12.1)	15.2 (11.7-19.4)	566
	13-14	3.17 (2.88-3.49)	3.01 (2.78-3.29)	5.11 (4.55-5.66)	8.41 (7.35-9.46)	12.3 (9.18-15.6)	699
Asians	11-12	3.76 (3.41-4.15)	3.84 (3.45-4.12)	6.00 (5.25-7.04)	11.2 (8.22-18.8)	21.2 (12.6-33.6)	341
	13-14	3.79 (2.92-4.93)	3.84 (2.79-5.03)	6.42 (4.60-8.73)	10.8 (8.10-15.7)	17.9 (9.69-33.6)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Perchlorate_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Perchlorate_FactSheet.html

Urinary Thiocyanate (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.52 (1.44-1.61)	1.50 (1.40-1.60)	3.60 (3.00-4.10)	7.90 (6.90-9.00)	12.0 (10.0-13.0)	1617
	05-06	1.23 (1.12-1.35)	1.18 (1.08-1.31)	2.55 (2.31-2.83)	6.11 (5.10-6.85)	9.04 (8.14-9.93)	7697
	07-08	1.35 (1.26-1.45)	1.32 (1.23-1.42)	2.77 (2.47-3.13)	6.36 (5.39-7.33)	9.54 (8.58-11.1)	7629
	09-10	1.15 (1.08-1.24)	1.12 (1.04-1.18)	2.27 (2.11-2.45)	5.39 (4.61-6.37)	8.92 (7.59-9.83)	2844
Age group							
6-11 years	01-02	1.35 (1.20-1.51)	1.50 (1.30-1.70)	2.50 (1.90-3.00)	3.70 (3.30-4.10)	4.90 (3.90-5.60)	374
	05-06	.980 (.892-1.08)	1.03 (.916-1.15)	1.72 (1.55-1.92)	2.65 (2.31-3.09)	3.45 (2.96-4.21)	1054
	07-08	1.10 (.989-1.22)	1.12 (1.02-1.24)	1.88 (1.68-2.07)	2.92 (2.48-3.52)	4.08 (3.35-5.30)	1143
	09-10	.847 (.760-.945)	.855 (.762-1.02)	1.51 (1.31-1.82)	2.27 (2.00-2.45)	2.64 (2.30-3.09)	377
12-19 years	01-02	1.59 (1.43-1.77)	1.50 (1.40-1.70)	2.90 (2.50-3.30)	5.30 (4.30-7.40)	7.70 (5.90-10.0)	826
	05-06	1.24 (1.11-1.39)	1.29 (1.15-1.47)	2.27 (1.99-2.62)	3.84 (3.18-4.65)	6.07 (4.76-6.95)	2106
	07-08	1.29 (1.15-1.46)	1.35 (1.14-1.53)	2.39 (2.06-2.69)	3.93 (3.36-4.57)	6.14 (4.55-7.27)	1135
	09-10	.978 (.869-1.10)	1.01 (.927-1.18)	1.76 (1.68-1.99)	2.96 (2.51-3.78)	4.48 (3.05-6.62)	452
20 years and older	01-02	1.54 (1.43-1.65)	1.50 (1.40-1.60)	3.60 (3.00-4.10)	7.90 (6.90-9.00)	12.0 (10.0-13.0)	1617
	05-06	1.26 (1.14-1.40)	1.19 (1.08-1.34)	2.82 (2.50-3.15)	6.87 (6.06-7.58)	9.79 (8.78-10.7)	4537
	07-08	1.39 (1.29-1.50)	1.34 (1.25-1.46)	3.11 (2.68-3.57)	7.21 (6.05-8.31)	10.8 (8.99-12.0)	5351
	09-10	1.22 (1.13-1.32)	1.15 (1.07-1.23)	2.53 (2.31-2.93)	6.32 (5.11-7.59)	9.72 (8.62-11.4)	2015
Gender							
Males	01-02	1.86 (1.67-2.07)	1.80 (1.60-2.10)	4.00 (3.40-4.90)	8.40 (7.00-10.0)	12.0 (10.0-13.0)	1335
	05-06	1.49 (1.36-1.64)	1.44 (1.27-1.62)	3.10 (2.82-3.56)	6.90 (6.13-7.64)	9.93 (8.99-10.7)	3765
	07-08	1.61 (1.50-1.72)	1.60 (1.50-1.71)	3.32 (2.96-3.77)	7.27 (6.01-8.22)	10.9 (9.04-12.3)	3839
	09-10	1.33 (1.22-1.46)	1.23 (1.15-1.36)	2.71 (2.29-3.10)	5.81 (5.01-7.19)	9.25 (7.85-10.0)	1401
Females	01-02	1.26 (1.16-1.36)	1.30 (1.00-1.40)	2.50 (2.40-2.80)	6.00 (5.20-6.70)	8.70 (7.20-10.0)	1482
	05-06	1.02 (.920-1.13)	.995 (.886-1.13)	2.07 (1.86-2.25)	4.61 (3.81-5.98)	8.04 (7.26-8.78)	3932
	07-08	1.14 (1.04-1.24)	1.09 (.991-1.19)	2.31 (2.06-2.62)	5.51 (4.58-6.52)	8.59 (7.36-9.85)	3790
	09-10	1.00 (.894-1.13)	.982 (.842-1.10)	1.95 (1.59-2.29)	4.63 (3.59-6.33)	8.79 (6.44-10.0)	1443
Race/ethnicity							
Mexican Americans	01-02	1.14 (.977-1.33)	1.20 (.940-1.40)	2.20 (1.80-2.60)	3.90 (3.00-4.90)	5.70 (4.20-6.60)	707
	05-06	.823 (.744-.912)	.844 (.763-.937)	1.51 (1.36-1.71)	2.70 (2.26-3.22)	4.48 (3.49-5.40)	1972
	07-08	.993 (.926-1.06)	1.04 (.987-1.11)	1.88 (1.75-2.02)	3.30 (2.98-3.52)	4.56 (3.92-5.43)	1505
	09-10	.877 (.787-.977)	.917 (.800-1.02)	1.62 (1.34-1.92)	2.97 (2.57-3.83)	5.06 (4.06-5.56)	611
Non-Hispanic blacks	01-02	1.91 (1.72-2.11)	2.00 (1.80-2.20)	3.90 (3.30-4.90)	7.60 (6.20-10.0)	10.0 (7.00-15.0)	679
	05-06	1.50 (1.32-1.72)	1.51 (1.36-1.68)	3.13 (2.56-3.81)	6.94 (5.66-8.09)	10.3 (8.01-12.4)	2078
	07-08	1.73 (1.61-1.86)	1.73 (1.61-1.86)	3.78 (3.53-4.23)	8.29 (7.25-9.07)	12.8 (11.2-14.5)	1707
	09-10	1.34 (1.21-1.48)	1.29 (1.15-1.49)	2.67 (2.36-3.32)	6.82 (6.01-8.08)	12.1 (7.67-14.1)	544
Non-Hispanic whites	01-02	1.56 (1.45-1.68)	1.50 (1.40-1.70)	3.40 (2.80-3.80)	7.20 (6.30-8.50)	12.0 (8.90-13.0)	1228
	05-06	1.30 (1.18-1.44)	1.25 (1.12-1.40)	2.74 (2.46-3.01)	6.53 (5.57-7.31)	9.43 (8.58-10.4)	3056
	07-08	1.42 (1.29-1.56)	1.41 (1.28-1.53)	2.98 (2.52-3.44)	6.67 (5.24-8.14)	9.71 (8.32-11.9)	3190
	09-10	1.27 (1.18-1.36)	1.18 (1.13-1.26)	2.44 (2.27-2.72)	5.95 (4.62-7.69)	9.59 (8.53-11.3)	1215

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 05-06, 07-08, and 09-10 are 0.02, 0.02, 0.02, and 0.02 respectively.

Urinary Thiocyanate (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.09 (1.01-1.17)	1.05 (.973-1.17)	2.23 (2.04-2.43)	4.69 (4.03-5.64)	7.16 (5.66-8.20)	2467
	13-14	1.04 (.963-1.13)	1.00 (.884-1.12)	2.10 (1.84-2.40)	4.75 (3.82-5.42)	7.90 (6.56-8.66)	2643
Age group							
6-11 years	11-12	.897 (.816-.987)	.982 (.847-1.11)	1.54 (1.35-1.74)	2.23 (1.93-3.02)	3.03 (2.34-4.45)	394
	13-14	.906 (.777-1.06)	.972 (.779-1.17)	1.57 (1.34-1.88)	2.44 (2.08-2.89)	3.31 (2.26-4.85)	398
12-19 years	11-12	.983 (.802-1.21)	.954 (.788-1.13)	1.73 (1.31-2.42)	3.48 (2.44-5.01)	5.86 (3.48-8.47)	384
	13-14	1.01 (.875-1.18)	.981 (.837-1.21)	1.86 (1.49-2.41)	3.20 (2.48-4.79)	5.37 (3.28-7.96)	449
20 years and older	11-12	1.13 (1.05-1.21)	1.10 (1.01-1.21)	2.42 (2.18-2.86)	5.35 (4.36-6.21)	7.38 (6.43-8.45)	1689
	13-14	1.06 (.972-1.16)	1.00 (.877-1.13)	2.26 (1.95-2.62)	5.17 (4.44-5.93)	8.38 (7.16-9.76)	1796
Gender							
Males	11-12	1.27 (1.18-1.38)	1.24 (1.10-1.37)	2.43 (2.11-2.97)	4.91 (3.99-6.43)	7.30 (5.96-8.51)	1251
	13-14	1.16 (1.07-1.26)	1.13 (.991-1.26)	2.35 (2.00-2.74)	4.93 (4.33-5.80)	8.12 (6.35-10.8)	1313
Females	11-12	.931 (.815-1.07)	.924 (.797-1.07)	1.95 (1.61-2.27)	4.36 (3.63-5.37)	6.83 (5.51-8.20)	1216
	13-14	.938 (.849-1.04)	.903 (.771-1.04)	1.81 (1.53-2.10)	4.30 (3.40-5.36)	7.43 (5.52-8.43)	1330
Race/ethnicity							
Mexican Americans	11-12	.892 (.730-1.09)	.936 (.734-1.16)	1.66 (1.38-1.94)	3.03 (1.90-4.79)	4.24 (2.64-5.25)	313
	13-14	.824 (.719-.944)	.877 (.749-.992)	1.51 (1.29-1.87)	2.51 (2.31-3.21)	3.96 (2.51-6.35)	451
Non-Hispanic blacks	11-12	1.29 (1.12-1.48)	1.25 (1.14-1.40)	2.37 (2.01-2.92)	5.75 (4.50-7.28)	9.91 (7.40-12.7)	663
	13-14	1.58 (1.42-1.76)	1.37 (1.30-1.54)	3.33 (2.81-3.93)	8.53 (6.12-9.87)	14.1 (9.87-15.2)	574
Non-Hispanic whites	11-12	1.16 (1.06-1.26)	1.12 (.996-1.28)	2.43 (2.16-2.92)	5.11 (4.03-6.43)	7.30 (5.87-8.45)	810
	13-14	1.06 (.949-1.19)	1.02 (.861-1.19)	2.20 (1.78-2.67)	4.53 (3.60-5.61)	7.91 (6.16-8.89)	975
All Hispanics	11-12	.865 (.733-1.02)	.876 (.734-1.02)	1.57 (1.38-1.82)	3.42 (2.20-4.37)	4.84 (3.85-6.40)	566
	13-14	.849 (.753-.957)	.891 (.757-.993)	1.51 (1.31-1.84)	2.93 (2.32-4.55)	5.32 (3.09-6.84)	699
Asians	11-12	.646 (.571-.731)	.715 (.624-.765)	1.19 (1.02-1.47)	2.51 (1.82-2.71)	3.19 (2.61-4.11)	341
	13-14	.555 (.478-.644)	.567 (.503-.640)	.983 (.817-1.20)	1.99 (1.47-2.37)	3.17 (2.12-4.08)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.02 and 0.02, respectively.

Urinary Thiocyanate (creatinine corrected) (2001 – 2010)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.53 (1.43-1.64)	1.47 (1.37-1.61)	3.35 (2.95-3.74)	7.34 (6.67-7.81)	10.3 (8.81-11.3)	1616
	05-06	1.23 (1.13-1.33)	1.15 (1.05-1.27)	2.44 (2.18-2.68)	5.67 (5.16-6.28)	8.23 (7.71-8.98)	7697
	07-08	1.39 (1.28-1.51)	1.33 (1.22-1.43)	2.72 (2.42-3.04)	6.11 (5.25-7.30)	9.59 (8.03-11.5)	7628
	09-10	1.24 (1.15-1.34)	1.13 (1.04-1.21)	2.31 (2.11-2.58)	5.78 (4.64-6.63)	9.13 (7.28-11.2)	2843
Age group							
6-11 years	01-02	1.56 (1.35-1.80)	1.55 (1.35-1.82)	2.67 (2.33-3.13)	4.46 (3.79-5.20)	5.33 (4.58-6.16)	374
	05-06	1.16 (1.06-1.28)	1.18 (1.06-1.34)	2.03 (1.81-2.32)	3.15 (2.83-3.43)	4.25 (3.49-4.58)	1054
	07-08	1.40 (1.27-1.54)	1.42 (1.24-1.59)	2.28 (2.02-2.53)	3.74 (3.29-4.26)	5.23 (4.39-6.65)	1143
	09-10	1.16 (1.04-1.30)	1.12 (1.02-1.23)	1.90 (1.58-2.26)	2.96 (2.47-3.57)	3.92 (3.04-4.67)	376
12-19 years	01-02	1.23 (1.12-1.35)	1.14 (1.08-1.24)	2.12 (1.78-2.45)	3.88 (3.28-4.91)	5.75 (3.93-8.13)	825
	05-06	.941 (.867-1.02)	.937 (.855-1.03)	1.69 (1.51-1.86)	2.95 (2.43-3.64)	4.15 (3.64-5.00)	2106
	07-08	1.01 (.910-1.12)	1.04 (.906-1.17)	1.75 (1.60-1.92)	2.94 (2.49-3.54)	4.69 (3.64-5.44)	1134
	09-10	.917 (.858-.980)	.875 (.784-.972)	1.53 (1.36-1.79)	2.90 (2.26-3.84)	4.86 (3.49-5.10)	452
20 years and older	01-02	1.59 (1.47-1.71)	1.47 (1.37-1.61)	3.35 (2.95-3.74)	7.34 (6.67-7.81)	10.3 (8.81-11.3)	1616
	05-06	1.29 (1.17-1.42)	1.20 (1.08-1.33)	2.68 (2.37-3.10)	6.43 (5.88-7.07)	8.99 (8.23-10.2)	4537
	07-08	1.46 (1.34-1.59)	1.37 (1.27-1.47)	3.00 (2.69-3.45)	7.02 (5.82-8.26)	10.5 (8.63-12.9)	5351
	09-10	1.30 (1.19-1.43)	1.17 (1.08-1.26)	2.63 (2.31-3.05)	6.41 (5.42-7.83)	9.88 (8.30-12.1)	2015
Gender							
Males	01-02	1.51 (1.37-1.67)	1.42 (1.31-1.59)	3.33 (3.00-3.67)	6.38 (5.81-6.92)	8.51 (7.41-9.72)	1335
	05-06	1.24 (1.12-1.37)	1.18 (1.05-1.32)	2.61 (2.26-3.01)	5.67 (5.00-6.43)	8.17 (7.15-9.13)	3765
	07-08	1.38 (1.28-1.50)	1.32 (1.23-1.42)	2.77 (2.42-3.08)	6.13 (5.47-6.97)	9.27 (7.82-11.1)	3839
	09-10	1.22 (1.09-1.36)	1.12 (1.02-1.24)	2.47 (2.14-2.96)	5.78 (4.51-6.67)	8.72 (6.88-11.3)	1400
Females	01-02	1.55 (1.43-1.69)	1.45 (1.33-1.58)	2.79 (2.42-3.25)	7.07 (5.86-7.69)	10.0 (8.18-11.1)	1480
	05-06	1.22 (1.12-1.33)	1.13 (1.04-1.24)	2.27 (2.00-2.54)	5.62 (4.91-6.37)	8.40 (7.20-10.5)	3932
	07-08	1.40 (1.27-1.55)	1.34 (1.19-1.45)	2.69 (2.40-3.03)	6.07 (4.89-7.80)	9.88 (7.93-12.1)	3789
	09-10	1.26 (1.12-1.42)	1.14 (1.01-1.26)	2.15 (1.88-2.74)	5.80 (4.17-7.29)	9.24 (6.88-12.0)	1443
Race/ethnicity							
Mexican Americans	01-02	1.07 (.898-1.27)	1.06 (.819-1.29)	1.97 (1.51-2.50)	3.62 (2.86-4.52)	5.10 (3.52-7.33)	707
	05-06	.768 (.685-.861)	.773 (.684-.881)	1.37 (1.20-1.59)	2.44 (2.19-2.85)	3.66 (3.28-4.27)	1972
	07-08	.995 (.923-1.07)	1.03 (.918-1.14)	1.88 (1.71-2.05)	3.27 (2.77-3.76)	4.59 (3.86-5.59)	1505
	09-10	.921 (.845-1.01)	.912 (.849-.985)	1.57 (1.38-1.90)	3.09 (2.79-3.63)	4.24 (3.72-5.62)	611
Non-Hispanic blacks	01-02	1.37 (1.18-1.59)	1.37 (1.18-1.61)	2.80 (2.21-3.43)	5.67 (4.17-6.74)	7.64 (5.91-11.3)	678
	05-06	1.08 (.972-1.20)	1.05 (.972-1.16)	2.15 (1.84-2.57)	4.77 (3.93-5.61)	6.91 (5.84-7.80)	2078
	07-08	1.31 (1.21-1.41)	1.25 (1.18-1.36)	2.81 (2.55-3.24)	6.19 (5.29-6.77)	8.74 (7.44-9.59)	1706
	09-10	1.07 (.963-1.19)	.993 (.888-1.08)	2.14 (1.87-2.49)	5.39 (3.94-6.76)	7.74 (6.56-11.3)	543
Non-Hispanic whites	01-02	1.67 (1.55-1.80)	1.55 (1.42-1.73)	3.29 (3.00-3.73)	7.09 (6.38-7.95)	10.3 (8.78-11.1)	1227
	05-06	1.38 (1.25-1.52)	1.30 (1.14-1.44)	2.78 (2.48-3.12)	6.31 (5.67-7.08)	9.00 (8.13-10.5)	3056
	07-08	1.55 (1.40-1.70)	1.45 (1.32-1.58)	2.96 (2.56-3.53)	7.03 (5.71-8.56)	10.9 (8.70-13.1)	3190
	09-10	1.42 (1.32-1.54)	1.25 (1.17-1.38)	2.71 (2.38-3.17)	6.59 (5.61-7.85)	10.2 (8.62-11.8)	1215

Urinary Thiocyanate (creatinine corrected) (2011 – 2014)

Geometric mean and selected percentiles of urine concentrations (in mg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.24 (1.18-1.31)	1.19 (1.11-1.28)	2.20 (2.12-2.37)	5.10 (4.05-5.98)	8.53 (6.73-10.9)	2465
	13-14	1.21 (1.13-1.29)	1.15 (1.06-1.23)	2.19 (1.96-2.53)	4.66 (4.14-5.35)	8.07 (7.12-9.33)	2642
Age group							
6-11 years	11-12	1.28 (1.16-1.40)	1.27 (1.12-1.39)	2.11 (1.89-2.34)	3.11 (2.69-4.13)	4.73 (3.62-5.77)	393
	13-14	1.36 (1.18-1.57)	1.41 (1.19-1.62)	2.34 (1.92-2.62)	3.39 (2.69-4.29)	5.02 (3.23-7.47)	398
12-19 years	11-12	.958 (.831-1.10)	.949 (.803-1.19)	1.49 (1.35-1.89)	2.82 (2.12-3.30)	3.77 (2.97-4.91)	384
	13-14	.919 (.810-1.04)	.926 (.721-1.06)	1.45 (1.28-1.64)	2.70 (2.33-3.40)	4.33 (2.71-8.41)	449
20 years and older	11-12	1.29 (1.22-1.35)	1.21 (1.12-1.31)	2.41 (2.19-2.67)	5.70 (4.69-7.11)	9.90 (7.75-11.3)	1688
	13-14	1.24 (1.15-1.34)	1.17 (1.08-1.27)	2.31 (2.03-2.75)	5.11 (4.54-6.09)	8.83 (7.82-10.2)	1795
Gender							
Males	11-12	1.20 (1.11-1.29)	1.16 (1.06-1.28)	2.16 (2.07-2.48)	5.00 (3.77-6.42)	7.75 (6.10-10.4)	1250
	13-14	1.17 (1.09-1.25)	1.14 (1.03-1.24)	2.10 (1.92-2.49)	5.08 (4.41-5.70)	8.07 (6.68-9.68)	1312
Females	11-12	1.28 (1.17-1.40)	1.22 (1.11-1.38)	2.20 (2.01-2.59)	5.10 (3.89-6.02)	10.4 (6.32-14.0)	1215
	13-14	1.25 (1.14-1.38)	1.16 (1.06-1.25)	2.23 (1.89-2.60)	4.36 (3.83-5.14)	7.86 (6.32-9.96)	1330
Race/ethnicity							
Mexican Americans	11-12	1.01 (.831-1.22)	.935 (.790-1.20)	1.90 (1.45-2.32)	3.28 (2.53-3.73)	4.49 (3.46-6.12)	313
	13-14	.943 (.828-1.07)	.917 (.853-1.03)	1.58 (1.27-1.87)	2.94 (2.27-3.92)	4.62 (3.15-5.41)	451
Non-Hispanic blacks	11-12	1.00 (.901-1.12)	.958 (.892-1.04)	1.96 (1.71-2.23)	3.72 (3.31-4.55)	6.36 (4.89-7.76)	663
	13-14	1.21 (1.07-1.36)	1.04 (.979-1.19)	2.26 (2.01-3.17)	6.42 (5.00-7.69)	9.44 (7.73-10.7)	574
Non-Hispanic whites	11-12	1.41 (1.31-1.52)	1.35 (1.23-1.46)	2.66 (2.21-2.91)	5.78 (4.49-7.41)	10.4 (7.41-12.8)	808
	13-14	1.31 (1.20-1.43)	1.27 (1.17-1.38)	2.43 (2.03-2.86)	4.88 (4.20-6.30)	8.53 (7.38-10.4)	974
All Hispanics	11-12	.968 (.826-1.13)	.923 (.805-1.11)	1.76 (1.45-2.07)	3.26 (2.53-3.76)	5.10 (3.76-6.40)	566
	13-14	.949 (.836-1.08)	.913 (.829-1.03)	1.64 (1.34-1.89)	3.11 (2.34-4.24)	4.98 (3.12-8.34)	699
Asians	11-12	.864 (.775-.964)	.868 (.767-.993)	1.44 (1.30-1.63)	2.31 (1.96-2.81)	3.69 (2.60-5.35)	341
	13-14	.870 (.761-.995)	.828 (.749-.933)	1.47 (1.29-1.82)	3.12 (1.99-3.61)	3.77 (2.99-4.62)	291

Serum Perfluorobutane sulfonic acid (PFBS) (2003 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	2094
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	2120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233
Age group 12-19 years	03-04	*	< LOD	< LOD	< LOD	< LOD	640
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	640
	07-08	*	< LOD	< LOD	< LOD	< LOD	357
	09-10	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	03-04	*	< LOD	< LOD	< LOD	< LOD	1454
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1480
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743
	09-10	*	< LOD	< LOD	< LOD	< LOD	1869
Gender Males	03-04	*	< LOD	< LOD	< LOD	< LOD	1053
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1048
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059
	09-10	*	< LOD	< LOD	< LOD	< LOD	1075
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	1041
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1072
	07-08	*	< LOD	< LOD	< LOD	< LOD	1041
	09-10	*	< LOD	< LOD	< LOD	< LOD	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorobutane sulfonic acid (PFBS) (2003 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	.100 (<LOD-.400)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorobutane sulfonic acid (PFBS) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	1904
	13-14	*	< LOD	< LOD	< LOD	< LOD	2168
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
	13-14	*	< LOD	< LOD	< LOD	< LOD	402
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1560
	13-14	*	< LOD	< LOD	< LOD	< LOD	1766
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	966
	13-14	*	< LOD	< LOD	< LOD	< LOD	1032
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	938
	13-14	*	< LOD	< LOD	< LOD	< LOD	1136
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	211
	13-14	*	< LOD	< LOD	< LOD	< LOD	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
	13-14	*	< LOD	< LOD	< LOD	< LOD	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	666
	13-14	*	< LOD	< LOD	< LOD	< LOD	862
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
	13-14	*	< LOD	< LOD	< LOD	< LOD	537
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	291
	13-14	*	< LOD	< LOD	< LOD	< LOD	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorobutane sulfonic acid (PFBS) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	639
Age group							
3-5 years	13-14	*	< LOD	< LOD	< LOD	< LOD	181
6-11 years	13-14	*	< LOD	< LOD	< LOD	.130 (<LOD-.140)	458
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	.130 (<LOD-.130)	343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	220
Other	13-14	*	< LOD	< LOD	< LOD	.130 (<LOD-.140)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorodecanoic acid (PFDA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	.200 (<LOD-.300)	.400 (.300-.700)	.600 (.400-1.10)	1562
	03-04	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.10)	.900 (.500-1.80)	2094
	05-06	.355 (.297-.423)	.300 (.300-.400)	.500 (.400-.700)	.900 (.600-1.60)	1.50 (.900-2.60)	2120
	07-08	.286 (.264-.309)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.700)	.900 (.800-1.00)	2100
	09-10	.279 (.258-.303)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.10)	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	.300 (.200-.400)	.400 (.300-.600)	543
	03-04	*	< LOD	< LOD	.500 (<LOD-1.00)	.800 (.300-1.20)	640
	05-06	.295 (.258-.338)	.300 (.200-.300)	.500 (.400-.500)	.600 (.500-.800)	.800 (.600-1.60)	640
	07-08	.231 (.214-.248)	.200 (.200-.300)	.300 (.300-.400)	.500 (.400-.500)	.600 (.500-.700)	357
	09-10	.220 (.198-.245)	.200 (.200-.200)	.300 (.300-.300)	.400 (.400-.600)	.600 (.400-.800)	364
20 years and older	99-00	*	< LOD	.300 (.200-.300)	.400 (.300-.800)	.600 (.400-1.50)	1019
	03-04	*	< LOD	.400 (<LOD-.500)	.700 (.400-1.00)	.900 (.500-1.80)	1454
	05-06	.364 (.303-.438)	.300 (.300-.400)	.500 (.400-.700)	1.00 (.600-1.70)	1.50 (.900-2.60)	1480
	07-08	.295 (.271-.321)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.10)	1743
	09-10	.289 (.265-.314)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.20)	1869
Gender Males	99-00	*	< LOD	.300 (.200-.300)	.400 (.300-.700)	.500 (.300-1.90)	743
	03-04	*	< LOD	.400 (<LOD-.500)	.800 (.400-1.40)	1.10 (.600-2.10)	1053
	05-06	.381 (.318-.456)	.400 (.300-.400)	.600 (.400-.800)	1.00 (.600-2.20)	1.70 (1.00-2.60)	1048
	07-08	.306 (.283-.331)	.300 (.300-.300)	.400 (.400-.500)	.700 (.600-.800)	.900 (.800-1.20)	1059
	09-10	.289 (.264-.318)	.300 (.300-.300)	.400 (.400-.500)	.600 (.500-.800)	.800 (.600-1.20)	1075
Females	99-00	*	< LOD	.200 (<LOD-.300)	.400 (.300-.800)	.600 (.400-1.40)	819
	03-04	*	< LOD	.300 (<LOD-.400)	.500 (.400-.800)	.800 (.500-1.20)	1041
	05-06	.331 (.277-.396)	.300 (.300-.400)	.500 (.400-.600)	.900 (.600-1.40)	1.30 (.800-2.30)	1072
	07-08	.267 (.245-.292)	.300 (.200-.300)	.400 (.400-.500)	.600 (.500-.800)	.800 (.700-1.10)	1041
	09-10	.270 (.248-.295)	.300 (.200-.300)	.400 (.400-.500)	.700 (.600-.800)	1.00 (.800-1.10)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorodecanoic acid (PFDA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	.300 (<LOD-.300)	.300 (.200-1.50)	584
	03-04	*	< LOD	< LOD	.500 (.400-.500)	.600 (.500-.800)	485
	05-06	.283 (.245-.327)	.300 (.200-.300)	.400 (.300-.500)	.600 (.500-1.00)	1.00 (.500-2.40)	499
	07-08	.253 (.222-.289)	.200 (.200-.300)	.400 (.300-.500)	.600 (.400-.700)	.600 (.500-1.40)	391
	09-10	.242 (.215-.272)	.200 (.200-.300)	.400 (.300-.400)	.500 (.500-.600)	.700 (.600-.800)	461
Non-Hispanic blacks	99-00	*	.200 (<LOD-.300)	.400 (.200-.700)	.800 (.500-1.20)	1.10 (.600-2.30)	303
	03-04	*	< LOD	.400 (<LOD-.700)	.800 (.400-1.50)	1.00 (.500-3.10)	538
	05-06	.405 (.309-.531)	.400 (.300-.500)	.600 (.400-.900)	1.20 (.600-2.90)	2.30 (1.10-3.70)	544
	07-08	.331 (.298-.368)	.300 (.300-.400)	.500 (.400-.600)	.800 (.600-.900)	1.00 (.800-1.50)	419
	09-10	.336 (.298-.379)	.300 (.300-.300)	.500 (.400-.600)	.800 (.600-1.00)	1.10 (.800-2.60)	391
Non-Hispanic whites	99-00	*	< LOD	.300 (<LOD-.300)	.400 (.300-.600)	.500 (.400-.800)	519
	03-04	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.00)	.900 (.500-1.80)	962
	05-06	.350 (.294-.417)	.300 (.300-.400)	.500 (.400-.700)	.900 (.600-1.50)	1.40 (.800-2.30)	935
	07-08	.276 (.254-.301)	.300 (.200-.300)	.400 (.400-.500)	.600 (.500-.700)	.900 (.700-.900)	931
	09-10	.270 (.240-.304)	.300 (.200-.300)	.400 (.300-.500)	.600 (.500-.800)	.800 (.600-1.10)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorodecanoic acid (PFDA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.199 (.181-.220)	.190 (.170-.210)	.300 (.270-.340)	.480 (.420-.580)	.690 (.600-.770)	1904
	13-14	.185 (.165-.208)	.200 (.200-.200)	.300 (.300-.300)	.500 (.400-.600)	.700 (.600-.900)	2168
Age group							
12-19 years	11-12	.146 (.126-.168)	.150 (.120-.170)	.200 (.180-.230)	.290 (.240-.340)	.360 (.290-.560)	344
	13-14	.136 (.122-.152)	.100 (.100-.200)	.200 (.200-.200)	.300 (.200-.400)	.400 (.300-.500)	402
20 years and older	11-12	.209 (.189-.230)	.200 (.180-.230)	.320 (.280-.370)	.510 (.440-.590)	.730 (.630-.850)	1560
	13-14	.193 (.171-.218)	.200 (.200-.200)	.300 (.300-.400)	.500 (.400-.600)	.800 (.600-.900)	1766
Gender							
Males	11-12	.206 (.184-.232)	.200 (.180-.230)	.310 (.260-.370)	.440 (.380-.550)	.620 (.480-.810)	966
	13-14	.198 (.175-.225)	.200 (.200-.200)	.300 (.300-.400)	.500 (.400-.700)	.800 (.600-1.00)	1032
Females	11-12	.193 (.177-.211)	.190 (.170-.210)	.290 (.260-.340)	.530 (.410-.640)	.690 (.640-.830)	938
	13-14	.174 (.155-.195)	.200 (.100-.200)	.300 (.200-.300)	.500 (.400-.500)	.700 (.500-.900)	1136
Race/ethnicity							
Mexican Americans	11-12	.176 (.150-.205)	.170 (.150-.200)	.260 (.210-.300)	.380 (.300-.530)	.530 (.360-.600)	211
	13-14	.145 (.125-.169)	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	.400 (.300-1.40)	332
Non-Hispanic blacks	11-12	.214 (.193-.237)	.200 (.180-.220)	.330 (.280-.380)	.590 (.420-.850)	.880 (.670-1.06)	485
	13-14	.200 (.162-.246)	.200 (.200-.200)	.300 (.200-.500)	.600 (.400-.900)	.900 (.700-1.20)	455
Non-Hispanic whites	11-12	.193 (.171-.219)	.190 (.170-.220)	.290 (.260-.340)	.440 (.360-.590)	.620 (.480-.740)	666
	13-14	.184 (.158-.213)	.200 (.200-.200)	.300 (.200-.400)	.500 (.400-.500)	.700 (.500-.800)	862
All Hispanics	11-12	.182 (.156-.212)	.170 (.150-.200)	.270 (.210-.330)	.430 (.330-.530)	.540 (.440-.760)	406
	13-14	.150 (.135-.167)	.200 (.100-.200)	.200 (.200-.300)	.300 (.300-.400)	.400 (.300-1.00)	537
Asians	11-12	.367 (.308-.438)	.350 (.280-.420)	.670 (.510-.870)	1.35 (.870-2.05)	2.05 (1.19-2.52)	291
	13-14	.360 (.294-.439)	.400 (.300-.500)	.700 (.500-.900)	1.50 (1.00-2.10)	2.20 (1.60-3.30)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorodecanoic acid (PFDA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.170 (.140-.220)	.300 (.240-.340)	.370 (.300-.420)	639
Age group							
3-5 years	13-14	*	.100 (<LOD-.130)	.170 (.130-.270)	.340 (.190-.440)	.370 (.230-.930)	181
6-11 years	13-14	*	< LOD	.180 (.160-.200)	.290 (.240-.320)	.350 (.310-.390)	458
Gender							
Males	13-14	*	< LOD	.170 (.120-.230)	.300 (.230-.340)	.370 (.260-.460)	343
Females	13-14	*	.100 (<LOD-.110)	.180 (.160-.230)	.290 (.240-.350)	.380 (.280-.470)	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	.170 (.140-.210)	.270 (.230-.340)	.400 (.270-.420)	220
Other	13-14	*	< LOD	.170 (.130-.230)	.300 (.240-.350)	.370 (.290-.460)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorododecanoic acid (PFDoA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	< LOD	1562
	03-04	*	< LOD	< LOD	< LOD	< LOD	2094
	05-06	*	< LOD	< LOD	< LOD	< LOD	2120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	< LOD	< LOD	543
	03-04	*	< LOD	< LOD	< LOD	< LOD	640
	05-06	*	< LOD	< LOD	< LOD	< LOD	640
	07-08	*	< LOD	< LOD	< LOD	< LOD	357
	09-10	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1019
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454
	05-06	*	< LOD	< LOD	< LOD	< LOD	1480
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1869
Gender Males	99-00	*	< LOD	< LOD	< LOD	< LOD	743
	03-04	*	< LOD	< LOD	< LOD	< LOD	1053
	05-06	*	< LOD	< LOD	< LOD	< LOD	1048
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059
	09-10	*	< LOD	< LOD	< LOD	< LOD	1075
Females	99-00	*	< LOD	< LOD	< LOD	< LOD	819
	03-04	*	< LOD	< LOD	< LOD	< LOD	1041
	05-06	*	< LOD	< LOD	< LOD	< LOD	1072
	07-08	*	< LOD	< LOD	< LOD	< LOD	1041
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorododecanoic acid (PFDoA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	< LOD	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	< LOD	303
	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	< LOD	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.400)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	< LOD	519
	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	< LOD	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorododecanoic acid (PFDoA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	.140 (<LOD-.240)	1904
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	2168
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (<LOD-.300)	402
20 years and older	11-12	*	< LOD	< LOD	< LOD	.150 (<LOD-.280)	1560
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1766
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.140 (<LOD-.240)	966
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1032
Females	11-12	*	< LOD	< LOD	< LOD	.130 (<LOD-.280)	938
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	1136
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.230)	211
	13-14	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (.200-.300)	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.160)	485
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.130 (<LOD-.290)	666
	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (<LOD-.300)	862
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.150)	406
	13-14	*	< LOD	< LOD	.200 (.100-.300)	.300 (.200-.300)	537
Asians	11-12	*	< LOD	< LOD	.180 (.130-.350)	.360 (.180-.440)	291
	13-14	*	< LOD	.100 (<LOD-.200)	.200 (.200-.500)	.300 (.200-.500)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorododecanoic acid (PFDoDA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	639
Age group							
3-5 years	13-14	*	< LOD	< LOD	< LOD	< LOD	181
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	458
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	220
Other	13-14	*	< LOD	< LOD	< LOD	< LOD	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroheptanoic acid (PFHpA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	.500 (<LOD-.600)	.700 (.500-1.00)	1562
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.500)	2094
	05-06	*	< LOD	< LOD	< LOD	.700 (<LOD-1.70)	2120
	07-08	*	< LOD	< LOD	< LOD	.500 (.400-.600)	2100
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	.800 (.600-1.10)	1.20 (.800-1.80)	543
	03-04	*	< LOD	< LOD	.400 (<LOD-.600)	.600 (.500-.900)	640
	05-06	*	< LOD	< LOD	.700 (<LOD-1.10)	1.10 (.600-2.70)	640
	07-08	*	< LOD	< LOD	.500 (<LOD-.600)	.600 (.500-.700)	357
	09-10	*	< LOD	.100 (.100-.200)	.200 (.200-.400)	.400 (.200-.500)	364
20 years and older	99-00	*	< LOD	< LOD	< LOD	.600 (<LOD-.900)	1019
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454
	05-06	*	< LOD	< LOD	< LOD	.600 (<LOD-2.10)	1480
	07-08	*	< LOD	< LOD	< LOD	.500 (<LOD-.500)	1743
	09-10	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.200)	1869
Gender Males	99-00	*	< LOD	< LOD	.500 (<LOD-.600)	.700 (.500-1.00)	743
	03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-.400)	1053
	05-06	*	< LOD	< LOD	.400 (<LOD-1.00)	.800 (<LOD-2.10)	1048
	07-08	*	< LOD	< LOD	< LOD	.600 (.400-.700)	1059
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1075
Females	99-00	*	< LOD	< LOD	.500 (<LOD-.700)	.700 (<LOD-1.20)	819
	03-04	*	< LOD	< LOD	< LOD	.400 (.300-.600)	1041
	05-06	*	< LOD	< LOD	< LOD	.600 (<LOD-1.30)	1072
	07-08	*	< LOD	< LOD	< LOD	.500 (.400-.500)	1041
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.3, 0.4, 0.4, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroheptanoic acid (PFHpA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	.500 (<LOD-.900)	.900 (.500-1.30)	584
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.900)	485
	05-06	*	< LOD	< LOD	< LOD	.500 (<LOD-1.50)	499
	07-08	*	< LOD	< LOD	< LOD	.500 (<LOD-.500)	391
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	461
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	.600 (<LOD-1.20)	303
	03-04	*	< LOD	< LOD	< LOD	< LOD	538
	05-06	*	< LOD	< LOD	< LOD	.500 (<LOD-1.80)	544
	07-08	*	< LOD	< LOD	< LOD	.600 (.400-.700)	419
	09-10	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.200)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	.400 (<LOD-.600)	.600 (.500-.900)	519
	03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-.500)	962
	05-06	*	< LOD	< LOD	< LOD	.800 (<LOD-2.10)	935
	07-08	*	< LOD	< LOD	< LOD	.500 (.400-.700)	931
	09-10	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.3, 0.4, 0.4, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroheptanoic acid (PFHpA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.140 (.120-.170)	.220 (.180-.260)	1904
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	2168
Age group							
12-19 years	11-12	*	< LOD	.100 (<LOD-.130)	.160 (.130-.200)	.190 (.160-.270)	344
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.100-.600)	402
20 years and older	11-12	*	< LOD	< LOD	.140 (.120-.180)	.220 (.160-.280)	1560
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	1766
Gender							
Males	11-12	*	< LOD	< LOD	.140 (.120-.200)	.220 (.180-.270)	966
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	1032
Females	11-12	*	< LOD	< LOD	.140 (.110-.180)	.200 (.140-.360)	938
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.300)	1136
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	.130 (<LOD-.180)	.170 (.120-.230)	211
	13-14	*	< LOD	< LOD	< LOD	.100 (<LOD-.300)	332
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.130 (.100-.150)	.180 (.140-.230)	485
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (<LOD-.200)	455
Non-Hispanic whites	11-12	*	< LOD	< LOD	.150 (.120-.190)	.230 (.160-.290)	666
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	862
All Hispanics	11-12	*	< LOD	< LOD	.140 (.100-.180)	.190 (.160-.230)	406
	13-14	*	< LOD	< LOD	< LOD	.100 (<LOD-.300)	537
Asians	11-12	*	< LOD	< LOD	.160 (.120-.220)	.230 (.180-.310)	291
	13-14	*	< LOD	< LOD	.100 (<LOD-.100)	.100 (.100-.200)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluoroheptanoic acid (PFHpA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	.150 (.110-.190)	.210 (.150-.300)	639
Age group							
3-5 years	13-14	*	< LOD	.110 (<LOD-.170)	.190 (.140-.310)	.310 (.180-.440)	181
6-11 years	13-14	*	< LOD	< LOD	.130 (<LOD-.150)	.170 (.130-.240)	458
Gender							
Males	13-14	*	< LOD	< LOD	.140 (.110-.180)	.190 (.140-.300)	343
Females	13-14	*	< LOD	< LOD	.150 (<LOD-.250)	.230 (.150-.390)	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	< LOD	.170 (.110-.230)	.230 (.170-.250)	220
Other	13-14	*	< LOD	< LOD	.150 (.100-.190)	.190 (.140-.390)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorohexane sulfonic acid (PFHxS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	2.13 (1.91-2.38)	2.10 (1.80-2.30)	3.40 (3.10-4.00)	5.80 (5.20-6.90)	8.70 (7.00-10.0)	1562
	03-04	1.93 (1.73-2.16)	1.90 (1.70-2.10)	3.30 (2.80-3.90)	5.90 (4.80-7.20)	8.30 (7.10-9.70)	2094
	05-06	1.67 (1.42-1.98)	1.80 (1.50-2.10)	3.20 (2.60-4.00)	5.40 (4.40-7.10)	8.30 (5.80-11.9)	2120
	07-08	1.95 (1.76-2.17)	2.00 (1.80-2.10)	3.50 (3.10-4.00)	5.90 (4.90-8.30)	9.80 (6.10-15.2)	2100
	09-10	1.66 (1.51-1.82)	1.70 (1.50-1.90)	3.00 (2.60-3.30)	4.80 (4.40-5.30)	6.90 (5.90-7.60)	2233
Age group 12-19 years	99-00	2.69 (2.14-3.39)	2.50 (2.00-3.70)	5.00 (3.60-6.50)	8.00 (5.80-12.9)	12.9 (6.90-16.4)	543
	03-04	2.44 (2.05-2.90)	2.40 (1.80-3.20)	4.90 (4.00-6.30)	9.50 (6.80-12.5)	13.3 (9.90-19.6)	640
	05-06	2.09 (1.74-2.52)	2.40 (2.00-2.90)	4.30 (3.70-5.40)	9.50 (6.40-13.1)	14.1 (9.80-17.8)	640
	07-08	2.40 (2.09-2.75)	2.30 (1.80-2.70)	4.30 (3.70-5.70)	9.90 (6.50-12.5)	15.9 (11.1-21.5)	357
	09-10	2.03 (1.77-2.33)	1.90 (1.60-2.10)	3.80 (3.20-4.20)	8.10 (6.30-9.70)	12.3 (8.60-19.0)	364
20 years and older	99-00	2.05 (1.85-2.27)	2.00 (1.80-2.30)	3.30 (3.00-3.70)	5.40 (4.90-5.90)	8.20 (6.70-9.50)	1019
	03-04	1.86 (1.67-2.08)	1.80 (1.60-2.10)	3.00 (2.60-3.60)	5.50 (4.50-6.70)	7.60 (6.30-9.40)	1454
	05-06	1.62 (1.37-1.92)	1.70 (1.50-2.10)	3.10 (2.50-3.80)	5.20 (4.20-6.50)	7.20 (5.10-11.6)	1480
	07-08	1.90 (1.69-2.13)	1.90 (1.70-2.10)	3.30 (2.90-3.90)	5.80 (4.50-8.00)	9.00 (5.60-15.0)	1743
	09-10	1.61 (1.45-1.79)	1.70 (1.50-1.90)	2.90 (2.50-3.30)	4.50 (4.00-5.20)	6.00 (5.40-7.10)	1869
Gender Males	99-00	2.61 (2.27-3.00)	2.60 (2.20-3.00)	4.10 (3.50-4.70)	6.60 (5.30-9.40)	10.5 (6.90-15.0)	743
	03-04	2.17 (1.87-2.51)	2.10 (1.80-2.40)	3.40 (2.80-4.50)	6.10 (4.60-8.10)	8.50 (6.50-10.5)	1053
	05-06	2.08 (1.76-2.45)	2.20 (1.80-2.70)	3.70 (3.20-4.60)	6.40 (4.80-9.30)	9.50 (6.70-13.7)	1048
	07-08	2.63 (2.36-2.94)	2.60 (2.40-2.80)	4.20 (3.80-4.90)	7.30 (5.50-11.0)	11.4 (7.10-18.1)	1059
	09-10	2.21 (1.99-2.46)	2.20 (1.90-2.50)	3.40 (3.00-4.00)	5.50 (5.00-6.40)	7.80 (6.50-9.90)	1075
Females	99-00	1.79 (1.56-2.06)	1.70 (1.50-2.10)	2.80 (2.30-3.50)	5.10 (4.10-6.70)	8.00 (5.70-9.00)	819
	03-04	1.72 (1.56-1.91)	1.60 (1.40-1.80)	2.90 (2.50-3.50)	5.80 (4.60-7.10)	8.20 (6.70-10.0)	1041
	05-06	1.37 (1.15-1.63)	1.50 (1.20-1.70)	2.80 (2.20-3.30)	4.60 (3.90-5.80)	6.60 (5.60-9.30)	1072
	07-08	1.46 (1.30-1.64)	1.40 (1.30-1.50)	2.60 (2.20-3.10)	4.70 (3.80-6.10)	7.50 (5.00-12.5)	1041
	09-10	1.26 (1.14-1.40)	1.30 (1.20-1.40)	2.20 (2.00-2.60)	4.00 (3.50-4.50)	5.40 (4.70-6.50)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.3, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorohexane sulfonic acid (PFHxS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	1.47 (1.13-1.92)	1.50 (1.00-2.00)	2.80 (1.80-3.80)	4.50 (3.30-6.90)	6.70 (4.60-9.50)	584
	03-04	1.42 (1.17-1.72)	1.50 (1.20-1.70)	2.30 (1.90-2.90)	4.30 (3.10-5.10)	5.50 (4.00-8.90)	485
	05-06	1.25 (.884-1.76)	1.60 (1.20-2.10)	2.80 (2.50-3.40)	4.30 (3.60-5.20)	6.00 (4.60-7.20)	499
	07-08	1.65 (1.46-1.86)	1.70 (1.40-1.90)	3.00 (2.70-3.40)	5.00 (3.70-6.10)	6.70 (5.20-10.7)	391
	09-10	1.01 (.835-1.22)	1.10 (.800-1.30)	1.80 (1.50-2.20)	3.10 (2.50-3.70)	4.00 (3.20-5.30)	461
Non-Hispanic blacks	99-00	2.14 (1.58-2.89)	2.10 (1.40-3.00)	3.40 (2.70-5.00)	6.70 (3.90-10.7)	10.7 (6.80-14.3)	303
	03-04	1.92 (1.62-2.26)	1.90 (1.60-2.20)	3.50 (2.80-4.60)	6.00 (5.00-7.10)	8.30 (6.30-12.0)	538
	05-06	1.53 (1.13-2.07)	1.70 (1.40-2.20)	3.30 (2.50-4.10)	5.40 (3.90-7.50)	7.50 (5.30-11.0)	544
	07-08	1.98 (1.55-2.52)	2.10 (1.80-2.50)	3.90 (2.80-5.40)	7.90 (4.20-12.5)	11.1 (5.90-17.2)	419
	09-10	1.44 (1.26-1.64)	1.40 (1.20-1.70)	2.60 (2.10-3.00)	4.40 (3.80-5.20)	6.50 (4.60-8.20)	391
Non-Hispanic whites	99-00	2.30 (2.06-2.56)	2.30 (1.90-2.60)	3.60 (3.20-4.20)	5.90 (5.30-7.00)	8.40 (7.00-9.70)	519
	03-04	2.01 (1.77-2.27)	1.90 (1.70-2.20)	3.30 (2.80-4.10)	6.10 (4.70-7.80)	8.20 (6.90-10.1)	962
	05-06	1.79 (1.48-2.17)	1.80 (1.50-2.20)	3.30 (2.70-4.30)	5.60 (4.60-8.20)	9.40 (6.10-13.1)	935
	07-08	2.13 (1.89-2.41)	2.10 (1.80-2.40)	3.70 (3.20-4.20)	6.40 (5.30-9.00)	10.5 (6.50-15.6)	931
	09-10	1.93 (1.77-2.10)	2.00 (1.80-2.20)	3.30 (2.90-3.70)	5.30 (4.80-5.60)	7.30 (6.20-8.80)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.3, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorohexane sulfonic acid (PFHxS) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.28 (1.15-1.43)	1.27 (1.11-1.45)	2.26 (2.01-2.61)	3.85 (3.28-4.61)	5.44 (4.61-6.82)	1904
	13-14	1.35 (1.20-1.52)	1.40 (1.20-1.60)	2.40 (2.20-2.70)	4.10 (3.60-4.80)	5.60 (4.70-7.10)	2168
Age group							
12-19 years	11-12	1.28 (1.08-1.51)	1.13 (.920-1.45)	2.17 (1.53-2.79)	4.53 (2.76-5.72)	6.45 (4.21-9.34)	344
	13-14	1.27 (1.06-1.53)	1.10 (.900-1.40)	2.10 (1.50-2.90)	4.10 (2.50-6.30)	6.30 (4.00-9.40)	402
20 years and older	11-12	1.28 (1.14-1.43)	1.28 (1.13-1.47)	2.29 (2.02-2.62)	3.76 (3.17-4.61)	5.05 (4.61-6.44)	1560
	13-14	1.36 (1.21-1.53)	1.40 (1.30-1.60)	2.50 (2.20-2.80)	4.10 (3.60-4.80)	5.50 (4.80-7.10)	1766
Gender							
Males	11-12	1.68 (1.50-1.89)	1.73 (1.46-2.03)	2.75 (2.37-3.28)	4.46 (3.76-5.09)	6.90 (4.99-8.59)	966
	13-14	1.84 (1.59-2.12)	1.90 (1.60-2.10)	3.00 (2.50-3.40)	4.60 (4.00-5.70)	6.30 (5.20-8.80)	1032
Females	11-12	.989 (.876-1.12)	.970 (.880-1.07)	1.71 (1.39-2.05)	2.96 (2.23-4.28)	4.61 (3.00-5.61)	938
	13-14	1.01 (.909-1.12)	1.00 (.900-1.10)	1.80 (1.60-2.10)	3.40 (2.80-4.10)	4.90 (3.80-5.90)	1136
Race/ethnicity							
Mexican Americans	11-12	.927 (.771-1.12)	.980 (.690-1.28)	1.56 (1.22-2.06)	2.26 (1.95-2.54)	2.78 (2.26-4.78)	211
	13-14	.973 (.866-1.09)	1.10 (1.00-1.10)	1.60 (1.40-1.80)	2.40 (2.10-2.70)	2.90 (2.60-4.30)	332
Non-Hispanic blacks	11-12	1.13 (1.03-1.23)	1.10 (1.01-1.22)	2.10 (1.84-2.35)	3.44 (2.86-4.15)	4.97 (3.68-6.89)	485
	13-14	1.16 (1.00-1.33)	1.20 (1.00-1.40)	2.20 (1.80-2.70)	3.60 (2.90-5.10)	5.60 (3.80-9.80)	455
Non-Hispanic whites	11-12	1.46 (1.28-1.66)	1.41 (1.20-1.69)	2.50 (2.10-3.00)	4.30 (3.47-4.99)	5.62 (4.70-7.60)	666
	13-14	1.53 (1.28-1.83)	1.50 (1.30-1.90)	2.70 (2.20-3.30)	4.80 (3.80-5.70)	5.90 (4.80-9.30)	862
All Hispanics	11-12	.904 (.737-1.11)	.950 (.730-1.23)	1.66 (1.36-2.06)	2.54 (2.06-3.15)	3.59 (2.52-5.42)	406
	13-14	1.00 (.875-1.14)	1.10 (1.00-1.20)	1.80 (1.50-2.00)	2.70 (2.20-3.60)	3.90 (2.90-4.50)	537
Asians	11-12	.942 (.791-1.12)	.980 (.820-1.20)	1.69 (1.41-1.94)	2.62 (2.13-3.50)	3.72 (2.75-5.98)	291
	13-14	1.15 (.948-1.40)	1.20 (.900-1.60)	2.20 (1.70-2.70)	3.30 (2.60-4.20)	4.40 (3.30-5.90)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorohexane sulfonic acid (PFHxS) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.843 (.756-.939)	.810 (.710-.900)	1.24 (1.08-1.47)	2.14 (1.62-2.81)	3.12 (2.29-4.59)	639
Age group							
3-5 years	13-14	.715 (.617-.828)	.740 (.580-.830)	1.04 (.920-1.24)	1.55 (1.07-2.41)	1.62 (1.31-3.66)	181
6-11 years	13-14	.913 (.803-1.04)	.850 (.730-.960)	1.41 (1.13-1.65)	2.33 (1.84-3.20)	4.14 (2.33-6.42)	458
Gender							
Males	13-14	.933 (.813-1.07)	.930 (.770-1.02)	1.54 (1.24-1.59)	2.32 (1.64-3.70)	3.73 (2.32-5.97)	343
Females	13-14	.757 (.672-.853)	.740 (.620-.830)	1.03 (.930-1.19)	1.65 (1.41-2.26)	2.94 (1.75-3.74)	296
Race/ethnicity							
All Hispanics	13-14	.787 (.697-.890)	.740 (.640-.810)	1.13 (1.01-1.39)	2.20 (1.31-3.20)	2.81 (1.88-5.89)	220
Other	13-14	.862 (.761-.977)	.840 (.710-.940)	1.29 (1.08-1.55)	2.14 (1.62-3.02)	3.56 (2.32-4.74)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorononanoic acid (PFNA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.551 (.456-.666)	.600 (.500-.700)	.900 (.700-1.00)	1.30 (1.00-1.90)	1.80 (1.30-2.40)	1562
	03-04	.966 (.816-1.14)	1.00 (.900-1.10)	1.50 (1.20-1.80)	2.30 (1.60-4.30)	3.20 (1.80-7.70)	2094
	05-06	1.09 (.909-1.29)	1.10 (.900-1.20)	1.70 (1.30-2.10)	2.60 (1.80-4.20)	3.60 (2.50-5.70)	2120
	07-08	1.22 (1.12-1.32)	1.23 (1.15-1.31)	1.72 (1.56-1.89)	2.62 (2.30-2.87)	3.28 (2.95-3.77)	2100
	09-10	1.26 (1.11-1.44)	1.23 (1.07-1.31)	1.80 (1.48-2.13)	2.71 (1.97-4.26)	3.77 (2.30-7.22)	2233
Age group 12-19 years	99-00	.473 (.406-.551)	.500 (.400-.600)	.700 (.600-.800)	.900 (.800-1.10)	1.20 (.900-1.40)	543
	03-04	.852 (.697-1.04)	.800 (.700-1.00)	1.20 (1.00-1.60)	1.90 (1.20-3.70)	2.80 (1.30-6.30)	640
	05-06	.929 (.782-1.10)	.900 (.800-1.10)	1.40 (1.10-1.80)	2.00 (1.60-2.70)	2.70 (2.10-3.40)	640
	07-08	1.16 (1.04-1.30)	1.15 (.980-1.31)	1.56 (1.31-1.97)	2.05 (1.64-2.71)	2.54 (2.13-3.28)	357
	09-10	1.10 (.950-1.27)	1.07 (.900-1.23)	1.48 (1.31-1.80)	2.21 (1.48-2.95)	2.62 (1.89-4.84)	364
20 years and older	99-00	.566 (.464-.690)	.600 (.500-.700)	.900 (.700-1.20)	1.40 (1.00-1.90)	1.90 (1.40-2.40)	1019
	03-04	.984 (.835-1.16)	1.00 (.900-1.10)	1.50 (1.20-1.80)	2.40 (1.60-4.40)	3.40 (1.80-8.40)	1454
	05-06	1.11 (.929-1.33)	1.10 (1.00-1.20)	1.70 (1.30-2.20)	2.60 (1.80-4.40)	3.90 (2.50-5.80)	1480
	07-08	1.23 (1.13-1.33)	1.23 (1.15-1.31)	1.72 (1.64-1.89)	2.62 (2.38-2.95)	3.36 (3.03-3.77)	1743
	09-10	1.29 (1.13-1.47)	1.23 (1.15-1.39)	1.80 (1.56-2.21)	2.71 (1.97-4.67)	3.94 (2.38-8.36)	1869
Gender Males	99-00	.604 (.510-.716)	.600 (.500-.700)	.900 (.800-1.10)	1.30 (1.10-1.80)	1.70 (1.30-2.40)	743
	03-04	1.09 (.912-1.30)	1.10 (.900-1.20)	1.60 (1.40-1.90)	2.40 (1.70-5.00)	4.00 (1.80-8.70)	1053
	05-06	1.19 (.993-1.43)	1.20 (1.00-1.30)	1.80 (1.40-2.50)	2.90 (1.80-4.60)	3.90 (2.50-6.70)	1048
	07-08	1.36 (1.27-1.47)	1.31 (1.23-1.39)	1.89 (1.72-2.05)	2.87 (2.54-3.12)	3.53 (3.12-4.18)	1059
	09-10	1.37 (1.17-1.59)	1.31 (1.15-1.48)	1.80 (1.56-2.30)	2.79 (1.89-4.84)	4.10 (2.21-12.1)	1075
Females	99-00	.508 (.409-.632)	.500 (.400-.600)	.800 (.600-1.00)	1.30 (.900-2.00)	1.80 (1.30-2.60)	819
	03-04	.861 (.721-1.03)	.900 (.800-1.00)	1.30 (1.00-1.70)	2.20 (1.40-3.40)	3.00 (1.70-6.10)	1041
	05-06	.992 (.833-1.18)	.900 (.800-1.10)	1.50 (1.20-1.90)	2.40 (1.70-3.50)	3.10 (2.10-5.70)	1072
	07-08	1.09 (.985-1.21)	1.07 (.980-1.23)	1.56 (1.48-1.72)	2.21 (1.97-2.54)	2.79 (2.54-3.53)	1041
	09-10	1.17 (1.05-1.31)	1.15 (.980-1.23)	1.72 (1.39-2.05)	2.62 (1.97-3.77)	3.53 (2.30-6.15)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.1, 0.082, and 0.082 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.82 for Survey periods 2007-2008 and 2009-2010 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorononanoic acid (PFNA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.341 (.292-.398)	.400 (.300-.400)	.500 (.400-.700)	.700 (.600-.900)	.900 (.700-1.30)	584
	03-04	.689 (.586-.809)	.700 (.600-.900)	1.10 (.900-1.40)	1.60 (1.30-2.00)	2.00 (1.60-2.80)	485
	05-06	.821 (.710-.951)	.800 (.700-.900)	1.20 (1.10-1.40)	1.60 (1.30-2.30)	2.30 (1.50-3.20)	499
	07-08	1.10 (.967-1.25)	1.15 (.980-1.31)	1.56 (1.39-1.80)	2.13 (1.80-2.71)	2.71 (2.13-3.28)	391
	09-10	.993 (.906-1.09)	.980 (.900-1.07)	1.39 (1.31-1.56)	2.05 (1.80-2.38)	2.46 (2.21-3.03)	461
Non-Hispanic blacks	99-00	.764 (.606-.964)	.700 (.600-1.00)	1.30 (.800-1.80)	1.90 (1.50-2.50)	2.50 (1.90-2.90)	303
	03-04	1.14 (.834-1.54)	1.10 (.900-1.40)	1.70 (1.20-2.90)	3.20 (1.50-6.50)	4.70 (2.10-9.30)	538
	05-06	1.17 (.916-1.50)	1.20 (.900-1.40)	1.60 (1.30-2.50)	2.60 (1.70-5.60)	4.40 (2.40-8.20)	544
	07-08	1.35 (1.23-1.48)	1.39 (1.23-1.48)	1.89 (1.72-2.13)	2.79 (2.30-3.36)	3.36 (2.79-4.67)	419
	09-10	1.42 (1.29-1.56)	1.39 (1.23-1.56)	1.97 (1.80-2.30)	2.79 (2.38-3.36)	3.36 (2.62-4.84)	391
Non-Hispanic whites	99-00	.566 (.467-.687)	.600 (.500-.700)	.900 (.700-1.10)	1.30 (1.00-1.90)	1.70 (1.30-2.30)	519
	03-04	.963 (.826-1.12)	.900 (.900-1.10)	1.50 (1.20-1.70)	2.30 (1.60-3.60)	3.00 (1.80-6.20)	962
	05-06	1.10 (.914-1.31)	1.10 (.900-1.20)	1.70 (1.30-2.10)	2.60 (1.80-4.20)	3.50 (2.40-5.70)	935
	07-08	1.22 (1.10-1.34)	1.23 (1.15-1.31)	1.72 (1.48-1.89)	2.54 (2.13-3.03)	3.20 (2.79-3.85)	931
	09-10	1.28 (1.08-1.51)	1.23 (1.07-1.39)	1.80 (1.48-2.21)	2.62 (1.80-5.08)	3.85 (2.05-10.8)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.1, 0.082, and 0.082 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.82 for Survey periods 2007-2008 and 2009-2010 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorononanoic acid (PFNA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.881 (.801-.968)	.860 (.750-.960)	1.30 (1.13-1.45)	1.96 (1.68-2.21)	2.54 (2.28-2.89)	1904
	13-14	.675 (.613-.742)	.700 (.600-.800)	1.00 (.900-1.20)	1.60 (1.40-1.70)	2.00 (1.80-2.30)	2168
Age group							
12-19 years	11-12	.741 (.638-.861)	.680 (.620-.810)	1.00 (.800-1.33)	1.67 (1.12-2.06)	2.06 (1.51-3.07)	344
	13-14	.599 (.492-.730)	.500 (.500-.600)	.800 (.600-1.30)	1.50 (.800-2.80)	2.00 (1.00-3.40)	402
20 years and older	11-12	.903 (.823-.992)	.890 (.800-.980)	1.34 (1.16-1.48)	2.00 (1.71-2.33)	2.64 (2.37-3.03)	1560
	13-14	.685 (.625-.752)	.700 (.600-.800)	1.00 (1.00-1.20)	1.60 (1.40-1.70)	2.00 (1.80-2.30)	1766
Gender							
Males	11-12	.946 (.836-1.07)	.930 (.810-1.09)	1.36 (1.18-1.52)	1.89 (1.61-2.37)	2.57 (2.14-3.12)	966
	13-14	.763 (.682-.854)	.800 (.700-.800)	1.10 (1.00-1.30)	1.70 (1.50-1.80)	2.20 (1.80-2.40)	1032
Females	11-12	.824 (.762-.890)	.770 (.700-.870)	1.19 (1.00-1.44)	2.00 (1.69-2.28)	2.52 (2.20-2.76)	938
	13-14	.600 (.549-.657)	.600 (.500-.700)	.900 (.900-1.00)	1.50 (1.30-1.60)	1.90 (1.70-2.10)	1136
Race/ethnicity							
Mexican Americans	11-12	.810 (.631-1.04)	.790 (.580-1.10)	1.17 (.840-1.66)	1.74 (1.19-2.47)	2.36 (1.66-2.85)	211
	13-14	.538 (.452-.641)	.500 (.500-.600)	.800 (.600-.900)	1.10 (.800-1.70)	1.60 (1.10-2.10)	332
Non-Hispanic blacks	11-12	.939 (.842-1.05)	.950 (.870-1.00)	1.35 (1.18-1.59)	2.03 (1.60-3.03)	3.12 (1.89-5.08)	485
	13-14	.665 (.564-.783)	.700 (.600-.800)	1.10 (.900-1.30)	1.70 (1.30-2.10)	2.20 (1.80-2.50)	455
Non-Hispanic whites	11-12	.864 (.766-.975)	.850 (.710-.980)	1.26 (1.04-1.45)	1.83 (1.54-2.21)	2.37 (2.00-3.14)	666
	13-14	.699 (.621-.786)	.700 (.600-.800)	1.10 (1.00-1.20)	1.60 (1.40-1.80)	2.00 (1.70-2.40)	862
All Hispanics	11-12	.850 (.699-1.03)	.840 (.660-1.00)	1.21 (.970-1.67)	1.99 (1.51-2.53)	2.53 (2.07-2.85)	406
	13-14	.549 (.484-.622)	.600 (.500-.600)	.800 (.700-.900)	1.10 (.900-1.50)	1.60 (1.20-2.10)	537
Asians	11-12	1.18 (.996-1.40)	1.18 (.970-1.49)	1.94 (1.56-2.38)	2.96 (2.52-3.50)	3.72 (3.04-4.31)	291
	13-14	.893 (.789-1.01)	.900 (.800-1.10)	1.50 (1.20-1.60)	2.20 (1.80-2.80)	3.10 (2.40-4.20)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.082 and 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorononanoic acid (PFNA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.794 (.681-.926)	.700 (.610-.820)	1.08 (.920-1.35)	2.03 (1.29-3.42)	3.26 (1.94-5.35)	639
Age group							
3-5 years	13-14	.764 (.630-.928)	.620 (.540-.760)	1.11 (.840-1.53)	2.03 (1.21-5.03)	3.49 (1.41-7.95)	181
6-11 years	13-14	.809 (.682-.960)	.750 (.630-.860)	1.07 (.920-1.38)	1.98 (1.16-3.56)	3.19 (1.55-4.88)	458
Gender							
Males	13-14	.829 (.686-1.00)	.720 (.610-.850)	1.10 (.890-1.59)	2.34 (1.17-5.35)	3.85 (1.72-6.93)	343
Females	13-14	.759 (.638-.902)	.680 (.570-.870)	1.07 (.890-1.35)	1.88 (1.21-2.84)	2.58 (1.42-4.06)	296
Race/ethnicity							
All Hispanics	13-14	.753 (.622-.912)	.640 (.540-.760)	1.03 (.790-1.53)	1.98 (1.15-3.26)	3.00 (1.59-9.32)	220
Other	13-14	.808 (.681-.958)	.720 (.600-.870)	1.09 (.920-1.38)	2.08 (1.34-3.47)	3.46 (1.88-5.35)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctanoic acid (PFOA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	5.21 (4.72-5.74)	5.20 (4.80-5.90)	6.90 (6.30-7.80)	9.40 (8.20-11.1)	11.9 (10.9-13.5)	1562
	03-04	3.95 (3.65-4.27)	4.10 (3.80-4.40)	5.80 (5.30-6.40)	7.80 (6.70-9.60)	9.80 (7.40-14.1)	2094
	05-06	3.92 (3.48-4.42)	4.20 (3.80-4.50)	6.20 (5.40-7.20)	9.00 (7.40-11.2)	11.3 (8.80-14.5)	2120
	07-08	4.12 (4.01-4.24)	4.30 (4.20-4.50)	5.90 (5.70-6.20)	7.90 (7.50-8.30)	9.60 (8.90-10.1)	2100
	09-10	3.07 (2.81-3.36)	3.20 (2.90-3.50)	4.60 (4.10-5.10)	6.00 (5.30-7.20)	7.50 (6.20-9.70)	2233
Age group 12-19 years	99-00	5.46 (4.98-5.99)	5.60 (4.90-6.10)	6.90 (6.20-7.70)	9.40 (7.70-11.0)	11.6 (10.2-12.5)	543
	03-04	3.89 (3.47-4.35)	4.00 (3.50-4.50)	5.40 (4.60-6.10)	7.00 (5.60-9.20)	8.60 (5.90-12.6)	640
	05-06	3.59 (3.26-3.96)	3.80 (3.30-4.20)	5.40 (4.60-5.90)	6.90 (6.30-7.90)	8.40 (7.30-10.1)	640
	07-08	3.91 (3.71-4.12)	4.00 (3.70-4.40)	5.00 (4.70-5.50)	6.10 (5.70-6.70)	7.30 (6.20-8.00)	357
	09-10	2.74 (2.46-3.05)	2.90 (2.60-3.10)	3.80 (3.30-4.20)	4.80 (4.10-5.30)	5.00 (4.40-7.20)	364
20 years and older	99-00	5.16 (4.66-5.72)	5.20 (4.70-5.70)	7.00 (6.30-7.80)	9.40 (8.20-11.1)	12.0 (10.8-14.0)	1019
	03-04	3.96 (3.67-4.27)	4.10 (3.90-4.40)	5.90 (5.40-6.50)	7.80 (6.80-9.60)	9.90 (7.60-14.2)	1454
	05-06	3.97 (3.51-4.49)	4.20 (3.80-4.60)	6.40 (5.40-7.50)	9.30 (7.40-11.9)	11.6 (9.00-14.8)	1480
	07-08	4.15 (4.02-4.30)	4.30 (4.20-4.60)	6.10 (5.80-6.50)	8.10 (7.70-8.70)	9.80 (9.00-10.4)	1743
	09-10	3.12 (2.84-3.43)	3.30 (3.00-3.60)	4.70 (4.20-5.30)	6.40 (5.40-7.50)	7.70 (6.30-10.2)	1869
Gender Males	99-00	5.71 (5.17-6.31)	6.00 (5.40-6.50)	7.70 (6.80-8.70)	10.6 (9.00-11.8)	12.1 (11.2-13.1)	743
	03-04	4.47 (4.07-4.91)	4.60 (4.30-5.00)	6.30 (5.70-7.20)	8.40 (6.80-12.5)	10.7 (7.40-17.5)	1053
	05-06	4.69 (4.23-5.20)	4.90 (4.40-5.40)	7.20 (6.10-8.00)	9.90 (8.00-12.2)	12.2 (9.60-15.2)	1048
	07-08	4.80 (4.55-5.06)	4.90 (4.60-5.20)	6.70 (6.30-7.10)	8.70 (8.10-9.30)	10.1 (9.50-11.1)	1059
	09-10	3.53 (3.22-3.87)	3.70 (3.40-4.00)	4.90 (4.50-5.40)	6.80 (5.40-8.00)	7.90 (6.40-10.2)	1075
Females	99-00	4.80 (4.32-5.34)	4.70 (4.40-5.20)	6.30 (5.60-7.10)	8.30 (7.50-9.90)	11.3 (9.20-14.4)	819
	03-04	3.50 (3.21-3.82)	3.60 (3.30-3.90)	5.20 (4.70-5.80)	7.10 (6.30-8.20)	8.60 (7.40-10.6)	1041
	05-06	3.31 (2.89-3.79)	3.50 (3.10-4.00)	5.20 (4.40-6.00)	7.90 (6.10-9.70)	10.1 (7.50-14.2)	1072
	07-08	3.55 (3.38-3.73)	3.70 (3.50-3.90)	5.20 (4.80-5.60)	7.00 (6.50-7.50)	8.30 (7.20-9.90)	1041
	09-10	2.69 (2.45-2.96)	2.70 (2.50-3.00)	4.10 (3.60-4.70)	5.60 (5.10-6.50)	6.90 (5.80-8.40)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.2, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctanoic acid (PFOA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	3.89 (3.58-4.21)	4.20 (3.80-4.60)	5.80 (5.20-6.30)	7.70 (6.40-8.00)	8.20 (7.70-8.90)	584
	03-04	3.11 (2.84-3.40)	3.30 (3.10-3.70)	4.50 (4.20-5.20)	6.70 (5.70-7.30)	7.60 (6.70-10.5)	485
	05-06	2.62 (2.33-2.95)	2.80 (2.50-3.30)	4.30 (3.80-4.70)	5.80 (5.30-6.70)	7.40 (5.90-8.10)	499
	07-08	3.54 (3.35-3.75)	3.80 (3.50-4.00)	5.20 (4.90-5.60)	6.60 (6.20-7.10)	7.60 (6.80-9.00)	391
	09-10	2.26 (2.00-2.54)	2.40 (2.10-2.60)	3.60 (3.10-3.80)	4.60 (4.00-5.30)	5.40 (4.50-6.60)	461
Non-Hispanic blacks	99-00	4.78 (4.10-5.57)	4.80 (3.80-5.90)	6.40 (5.90-7.50)	9.00 (7.40-11.5)	11.5 (9.20-14.0)	303
	03-04	3.37 (2.99-3.79)	3.70 (3.20-4.20)	5.20 (4.40-6.30)	7.70 (5.30-11.6)	9.60 (6.50-13.9)	538
	05-06	3.27 (2.61-4.08)	3.70 (3.00-4.20)	5.50 (4.40-6.80)	8.10 (6.00-11.3)	10.4 (7.80-12.3)	544
	07-08	3.86 (3.57-4.16)	4.00 (3.50-4.30)	5.90 (5.20-6.50)	7.80 (7.10-8.70)	9.20 (8.50-10.1)	419
	09-10	2.74 (2.47-3.04)	2.80 (2.60-3.00)	4.00 (3.70-4.40)	5.50 (5.00-6.20)	6.70 (5.60-9.40)	391
Non-Hispanic whites	99-00	5.61 (5.06-6.23)	5.60 (4.90-6.20)	7.30 (6.50-8.20)	10.3 (8.40-12.1)	13.0 (11.0-14.9)	519
	03-04	4.18 (3.85-4.53)	4.30 (3.90-4.70)	6.00 (5.50-6.70)	7.90 (7.20-9.20)	9.90 (7.60-13.3)	962
	05-06	4.27 (3.80-4.81)	4.40 (4.00-5.00)	6.60 (5.60-7.80)	9.60 (7.40-12.2)	11.6 (8.80-14.8)	935
	07-08	4.38 (4.20-4.56)	4.60 (4.30-4.70)	6.10 (5.80-6.60)	8.20 (7.80-8.80)	9.90 (9.30-10.6)	931
	09-10	3.36 (3.06-3.69)	3.50 (3.20-3.90)	4.80 (4.40-5.40)	6.60 (5.40-7.80)	7.80 (6.20-10.5)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.2, 0.1, 0.1, and 0.1 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctanoic acid (PFOA) (2011 – 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.08 (1.95-2.22)	2.08 (1.96-2.26)	3.03 (2.76-3.27)	4.35 (3.82-4.85)	5.68 (5.02-6.49)	1904
	13-14‡	1.94 (1.76-2.14)	2.07 (1.87-2.20)	3.07 (2.67-3.37)	4.27 (3.57-5.17)	5.57 (4.60-6.27)	2165
Age group							
12-19 years	11-12	1.80 (1.71-1.91)	1.74 (1.67-1.89)	2.41 (2.17-2.62)	2.93 (2.68-3.19)	3.59 (2.93-4.25)	344
	13-14‡	1.66 (1.50-1.84)	1.67 (1.37-1.97)	2.20 (1.97-2.57)	2.87 (2.57-3.40)	3.47 (2.87-4.37)	401
20 years and older	11-12	2.12 (1.98-2.28)	2.16 (2.01-2.33)	3.15 (2.90-3.36)	4.64 (3.93-5.25)	5.94 (5.34-7.45)	1560
	13-14‡	1.98 (1.79-2.19)	2.07 (1.90-2.27)	3.17 (2.77-3.47)	4.47 (3.70-5.27)	5.60 (4.67-6.40)	1764
Gender							
Males	11-12	2.37 (2.22-2.53)	2.38 (2.26-2.56)	3.25 (3.00-3.56)	4.61 (4.11-5.02)	5.62 (4.85-6.20)	966
	13-14‡	2.29 (2.09-2.50)	2.37 (2.17-2.57)	3.27 (2.87-3.60)	4.67 (3.77-5.60)	5.67 (4.67-6.27)	1031
Females	11-12	1.84 (1.68-2.01)	1.78 (1.62-1.98)	2.65 (2.34-3.14)	3.91 (3.36-4.99)	5.68 (4.33-8.45)	938
	13-14‡	1.66 (1.48-1.87)	1.67 (1.47-1.87)	2.67 (2.27-3.07)	3.77 (3.37-4.70)	5.07 (4.07-6.70)	1134
Race/ethnicity							
Mexican Americans	11-12	1.66 (1.37-2.02)	1.71 (1.32-2.23)	2.43 (1.98-2.98)	3.38 (2.43-4.48)	4.08 (2.98-6.15)	211
	13-14‡	1.36 (1.25-1.47)	1.37 (1.27-1.47)	1.97 (1.87-2.10)	2.70 (2.40-3.10)	3.17 (2.57-3.77)	332
Non-Hispanic blacks	11-12	1.80 (1.71-1.90)	1.94 (1.76-2.09)	2.82 (2.65-2.95)	3.94 (3.51-4.40)	5.11 (4.40-5.79)	485
	13-14‡	1.52 (1.34-1.73)	1.67 (1.37-1.97)	2.57 (2.17-2.97)	3.60 (3.07-4.50)	4.60 (3.40-5.77)	455
Non-Hispanic whites	11-12	2.25 (2.05-2.47)	2.25 (1.98-2.48)	3.21 (2.90-3.50)	4.68 (3.95-5.35)	6.20 (5.34-7.74)	666
	13-14‡	2.20 (1.91-2.52)	2.27 (1.97-2.67)	3.37 (2.77-3.77)	4.77 (3.77-5.67)	5.77 (4.80-6.87)	861
All Hispanics	11-12	1.70 (1.48-1.95)	1.79 (1.59-1.95)	2.46 (2.15-2.91)	3.60 (2.95-4.48)	4.70 (3.87-5.94)	406
	13-14‡	1.45 (1.33-1.59)	1.47 (1.37-1.67)	2.10 (1.97-2.40)	3.07 (2.67-3.27)	3.47 (3.17-3.97)	537
Asians	11-12	2.08 (1.83-2.36)	2.21 (2.04-2.27)	2.92 (2.55-3.45)	4.66 (3.42-5.79)	5.79 (4.93-8.91)	291
	13-14‡	1.97 (1.75-2.23)	1.87 (1.67-2.27)	2.97 (2.47-3.57)	4.67 (3.97-5.77)	5.90 (5.00-6.40)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

‡See Calculation of PFOS and PFOA as the Sum of Isomers for additional information about Survey years 2013-2014.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorooctanoic acid (PFOA) (2013 – 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	1.92 (1.75-2.12)	1.94 (1.66-2.15)	2.67 (2.42-2.88)	3.53 (3.13-4.09)	4.19 (3.62-5.47)	639
Age group							
3-5 years	13-14	2.00 (1.75-2.29)	1.80 (1.62-2.40)	2.94 (2.66-3.28)	4.14 (2.88-5.86)	5.58 (3.28-7.02)	181
6-11 years	13-14	1.89 (1.72-2.07)	1.94 (1.68-2.14)	2.53 (2.25-2.84)	3.26 (2.97-3.68)	3.84 (3.40-4.09)	458
Gender							
Males	13-14	1.95 (1.76-2.15)	1.90 (1.64-2.19)	2.71 (2.39-3.26)	3.62 (3.23-4.00)	4.14 (3.41-5.86)	343
Females	13-14	1.90 (1.68-2.14)	1.94 (1.63-2.18)	2.55 (2.30-2.80)	3.30 (2.88-4.01)	4.22 (3.07-5.47)	296
Race/ethnicity							
All Hispanics	13-14	1.71 (1.56-1.88)	1.68 (1.55-1.93)	2.31 (2.05-2.60)	2.91 (2.48-3.30)	3.29 (2.86-4.00)	220
Other	13-14	2.00 (1.79-2.23)	1.99 (1.71-2.34)	2.75 (2.50-3.16)	3.72 (3.20-4.22)	4.28 (3.79-5.86)	419

‡. See Calculation of PFOS and PFOA as the Sum of Isomers for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum n-Perfluorooctanoic acid (n-PFOA) (2013 – 2014) Linear PFOA isomer

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	1.83 (1.65-2.03)	1.90 (1.80-2.10)	2.90 (2.60-3.20)	4.10 (3.50-5.10)	5.30 (4.40-6.00)	2165
Age group							
12-19 years	13-14	1.56 (1.41-1.74)	1.60 (1.30-1.80)	2.10 (1.90-2.50)	2.70 (2.30-3.40)	3.40 (2.70-4.80)	401
20 years and older	13-14	1.87 (1.68-2.08)	2.00 (1.80-2.20)	3.00 (2.70-3.30)	4.40 (3.60-5.10)	5.40 (4.60-6.20)	1764
Gender							
Males	13-14	2.18 (1.98-2.39)	2.30 (2.10-2.50)	3.20 (2.80-3.50)	4.60 (3.70-5.30)	5.40 (4.60-5.90)	1031
Females	13-14	1.55 (1.37-1.75)	1.60 (1.40-1.80)	2.60 (2.20-2.90)	3.70 (3.30-4.70)	4.80 (3.90-6.60)	1134
Race/ethnicity							
Mexican Americans	13-14	1.27 (1.16-1.38)	1.30 (1.20-1.40)	1.90 (1.80-2.00)	2.60 (2.30-3.10)	3.10 (2.50-3.70)	332
Non-Hispanic blacks	13-14	1.41 (1.23-1.62)	1.60 (1.30-1.90)	2.50 (2.10-2.80)	3.50 (2.90-4.40)	4.40 (3.30-5.70)	455
Non-Hispanic whites	13-14	2.08 (1.80-2.41)	2.20 (1.90-2.60)	3.20 (2.70-3.60)	4.60 (3.60-5.50)	5.60 (4.70-6.70)	861
All Hispanics	13-14	1.35 (1.23-1.49)	1.40 (1.30-1.60)	2.00 (1.90-2.30)	2.90 (2.50-3.10)	3.40 (3.10-3.70)	537
Asians	13-14	1.87 (1.65-2.12)	1.80 (1.60-2.20)	2.90 (2.40-3.50)	4.60 (3.90-5.70)	5.70 (4.70-6.80)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum n-Perfluorooctanoic acid (n-PFOA) (2013 – 2014) Linear PFOA isomer

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	1.81 (1.64-2.01)	1.82 (1.57-2.04)	2.51 (2.30-2.81)	3.46 (2.94-3.94)	4.07 (3.53-5.32)	639
Age group							
3-5 years	13-14	1.87 (1.62-2.17)	1.72 (1.50-2.25)	2.87 (2.50-3.21)	4.07 (2.81-5.79)	5.32 (3.01-6.51)	181
6-11 years	13-14	1.78 (1.61-1.97)	1.84 (1.59-2.04)	2.45 (2.18-2.73)	3.19 (2.83-3.61)	3.77 (3.43-3.97)	458
Gender							
Males	13-14	1.83 (1.65-2.04)	1.80 (1.55-2.09)	2.64 (2.28-3.19)	3.55 (3.13-3.93)	4.07 (3.34-5.79)	343
Females	13-14	1.79 (1.57-2.03)	1.84 (1.57-2.04)	2.48 (2.23-2.73)	3.21 (2.81-3.97)	4.08 (2.92-5.32)	296
Race/ethnicity							
All Hispanics	13-14	1.61 (1.46-1.78)	1.60 (1.45-1.83)	2.23 (1.95-2.48)	2.84 (2.37-3.20)	3.18 (2.78-3.93)	220
Other	13-14	1.88 (1.68-2.11)	1.88 (1.63-2.23)	2.66 (2.39-3.01)	3.64 (3.13-4.15)	4.15 (3.55-5.79)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum branched Perfluorooctanoic acid (Sb-PFOA) (2013 – 2014) Branched isomers of PFOA

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	2165
Age group							
12-19 years	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.100-.400)	401
20 years and older	13-14	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.300)	1764
Gender							
Males	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.400)	1031
Females	13-14	*	< LOD	< LOD	.100 (.100-.200)	.200 (.200-.300)	1134
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.200)	332
Non-Hispanic blacks	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	455
Non-Hispanic whites	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.500)	861
All Hispanics	13-14	*	< LOD	< LOD	.100 (<LOD-.200)	.200 (.100-.300)	537
Asians	13-14	*	< LOD	< LOD	.100 (<LOD-.400)	.200 (<LOD-.3.00)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum branched Perfluorooctanoic acid (Sb-PFOA) (2013 – 2014) Branched PFOA isomers

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.100 (<LOD-.120)	.160 (.120-.230)	.230 (.180-.360)	639
Age group							
3-5 years	13-14	*	< LOD	.100 (<LOD-.190)	.200 (.120-.280)	.280 (.160-.510)	181
6-11 years	13-14	*	< LOD	.100 (<LOD-.120)	.160 (.130-.200)	.230 (.170-.340)	458
Gender							
Males	13-14	*	< LOD	.110 (<LOD-.130)	.180 (.150-.200)	.220 (.170-.310)	343
Females	13-14	*	< LOD	.100 (<LOD-.130)	.160 (.110-.310)	.230 (.150-.450)	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	.100 (<LOD-.110)	.150 (.120-.170)	.190 (.150-.250)	220
Other	13-14	*	< LOD	.110 (<LOD-.150)	.180 (.130-.230)	.250 (.180-.470)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonic acid (PFOS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	30.4 (27.1-33.9)	30.2 (27.8-33.9)	43.7 (37.5-47.3)	57.0 (50.2-71.7)	75.7 (58.1-97.5)	1562
	03-04	20.7 (19.2-22.3)	21.2 (19.8-22.4)	30.0 (27.5-33.0)	41.3 (35.6-50.0)	54.6 (44.0-66.5)	2094
	05-06	17.1 (16.0-18.2)	17.5 (16.8-18.6)	27.2 (24.9-29.6)	39.4 (34.9-43.1)	47.5 (42.7-56.8)	2120
	07-08	13.2 (12.2-14.2)	13.6 (12.8-14.7)	21.0 (18.9-23.3)	32.6 (29.4-36.3)	40.5 (35.4-47.4)	2100
	09-10	9.32 (8.13-10.7)	9.70 (8.50-10.8)	14.8 (12.9-17.3)	23.7 (18.3-30.2)	32.0 (22.6-48.5)	2233
Age group 12-19 years	99-00	29.1 (26.2-32.4)	29.5 (26.9-34.2)	39.0 (35.9-45.0)	52.7 (46.0-56.2)	57.4 (52.7-66.5)	543
	03-04	19.3 (17.5-21.4)	19.9 (17.8-22.0)	27.1 (23.7-30.2)	36.5 (28.6-45.6)	42.6 (35.1-52.1)	640
	05-06	15.0 (14.3-15.7)	14.9 (13.6-16.6)	22.7 (19.7-24.9)	30.6 (27.8-34.1)	38.5 (33.0-44.6)	640
	07-08	11.3 (10.3-12.3)	11.3 (10.3-13.0)	15.9 (15.1-17.7)	21.7 (17.7-28.2)	28.0 (22.0-32.2)	357
	09-10	6.84 (5.81-8.06)	6.90 (6.00-8.40)	10.7 (8.90-12.5)	14.4 (12.4-18.1)	18.1 (13.5-26.0)	364
20 years and older	99-00	30.6 (27.1-34.4)	30.3 (27.9-33.9)	44.4 (37.9-48.0)	58.0 (50.1-75.7)	78.0 (59.9-107)	1019
	03-04	20.9 (19.3-22.5)	21.4 (19.8-22.8)	30.4 (28.1-33.0)	42.7 (35.7-53.3)	57.8 (45.7-69.4)	1454
	05-06	17.4 (16.2-18.7)	18.0 (17.1-19.4)	27.8 (25.3-30.8)	40.2 (35.6-44.5)	49.6 (42.8-60.7)	1480
	07-08	13.5 (12.4-14.6)	14.0 (13.0-15.5)	21.7 (19.5-24.6)	33.9 (29.9-39.0)	42.8 (37.3-50.3)	1743
	09-10	9.72 (8.45-11.2)	10.1 (8.90-11.2)	15.7 (13.4-18.4)	25.3 (19.3-32.9)	34.1 (23.4-52.7)	1869
Gender Males	99-00	33.4 (29.6-37.6)	34.9 (31.1-37.9)	46.3 (41.2-51.6)	58.4 (50.2-78.3)	78.3 (58.0-108)	743
	03-04	23.2 (21.1-25.6)	23.9 (22.4-25.5)	32.2 (28.8-35.9)	45.3 (35.5-62.7)	62.7 (43.8-81.8)	1053
	05-06	20.5 (19.4-21.8)	21.3 (20.0-22.5)	31.4 (27.9-33.7)	43.3 (38.7-49.7)	54.3 (43.5-80.7)	1048
	07-08	16.3 (15.0-17.7)	17.0 (15.7-17.8)	23.9 (21.6-26.9)	36.4 (33.5-41.1)	45.3 (40.4-53.1)	1059
	09-10	11.5 (9.93-13.3)	11.8 (10.6-12.9)	16.8 (14.3-20.4)	25.7 (19.4-39.7)	37.4 (22.5-72.3)	1075
Females	99-00	28.0 (24.6-31.8)	27.8 (24.5-30.2)	39.0 (32.7-46.0)	55.4 (46.3-70.2)	75.7 (56.1-98.4)	819
	03-04	18.4 (17.0-20.0)	18.2 (16.9-19.8)	27.4 (23.8-30.2)	39.8 (34.4-42.6)	46.6 (42.3-61.5)	1041
	05-06	14.4 (13.3-15.4)	14.6 (13.5-15.9)	23.3 (21.1-25.3)	34.2 (30.6-37.7)	42.8 (38.0-46.5)	1072
	07-08	10.7 (9.70-11.7)	10.7 (9.80-11.7)	17.2 (15.4-19.1)	28.7 (21.7-32.5)	33.6 (29.9-41.6)	1041
	09-10	7.65 (6.73-8.71)	7.80 (6.70-9.00)	12.0 (10.8-14.4)	21.1 (16.4-26.9)	28.8 (22.3-34.1)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonic acid (PFOS) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	22.7 (19.8-25.9)	23.7 (20.8-27.2)	33.0 (27.9-39.7)	41.9 (36.7-54.5)	53.6 (41.3-72.0)	584
	03-04	14.7 (13.0-16.6)	15.9 (13.4-17.9)	21.2 (18.7-23.5)	28.1 (24.1-35.0)	35.5 (28.9-38.5)	485
	05-06	11.2 (10.3-12.2)	11.6 (9.90-13.3)	17.2 (15.4-19.3)	24.9 (22.0-30.3)	31.9 (26.4-40.6)	499
	07-08	10.6 (9.47-11.9)	10.8 (9.70-12.2)	17.1 (14.9-19.2)	26.3 (20.7-30.4)	31.5 (25.7-36.1)	391
	09-10	6.23 (5.28-7.36)	6.10 (5.10-8.10)	11.2 (8.50-14.1)	16.8 (14.9-18.8)	20.4 (17.5-22.7)	461
Non-Hispanic blacks	99-00	32.9 (26.0-41.6)	32.0 (23.9-45.8)	50.6 (37.4-62.2)	69.3 (60.9-75.9)	81.5 (68.0-129)	303
	03-04	21.6 (19.1-24.4)	22.1 (19.6-24.9)	32.3 (28.1-36.2)	43.8 (37.2-57.3)	57.7 (43.8-78.4)	538
	05-06	18.4 (15.6-21.8)	19.0 (16.7-22.3)	27.6 (24.3-35.5)	45.9 (34.4-58.1)	57.9 (45.0-84.4)	544
	07-08	15.0 (12.6-17.8)	15.2 (12.9-17.7)	25.8 (21.0-33.3)	42.7 (31.5-57.3)	57.3 (43.4-79.2)	419
	09-10	9.11 (7.93-10.5)	9.50 (8.20-11.2)	16.0 (13.4-17.4)	23.0 (20.5-26.1)	28.7 (25.7-39.7)	391
Non-Hispanic whites	99-00	32.3 (29.5-35.3)	32.8 (29.5-36.0)	45.1 (40.4-47.4)	56.3 (51.7-70.0)	78.0 (58.0-98.4)	519
	03-04	21.4 (19.9-23.1)	22.0 (20.5-23.0)	30.2 (27.7-33.3)	41.7 (35.7-49.6)	56.3 (44.0-70.0)	962
	05-06	18.1 (17.1-19.1)	18.6 (17.3-19.8)	28.3 (26.1-30.8)	39.7 (35.6-43.3)	46.6 (42.7-54.3)	935
	07-08	13.7 (12.7-14.8)	14.3 (13.2-15.5)	21.1 (18.7-23.7)	32.9 (29.7-36.0)	40.4 (36.1-44.9)	931
	09-10	10.2 (8.69-11.9)	10.4 (9.20-11.5)	15.6 (13.0-18.7)	24.7 (17.5-35.1)	33.1 (20.7-56.7)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonic acid (PFOS) (2011 – 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.31 (5.84-6.82)	6.53 (5.99-7.13)	10.5 (9.78-11.1)	15.7 (14.7-17.5)	21.7 (19.3-23.9)	1904
	13-14‡	4.99 (4.50-5.52)	5.20 (4.80-5.70)	8.70 (7.90-9.40)	13.9 (11.9-15.5)	18.5 (15.4-22.0)	2165
Age group							
12-19 years	11-12	4.16 (3.70-4.68)	4.11 (3.48-4.65)	5.90 (5.14-7.25)	9.05 (6.49-10.8)	10.8 (8.52-14.2)	344
	13-14‡	3.54 (3.17-3.96)	3.60 (3.10-4.20)	5.20 (4.60-6.20)	7.80 (7.00-8.90)	9.30 (7.90-11.7)	401
20 years and older	11-12	6.71 (6.24-7.20)	7.07 (6.65-7.52)	11.0 (10.4-11.9)	17.0 (15.3-18.5)	22.7 (20.4-24.8)	1560
	13-14‡	5.22 (4.70-5.81)	5.60 (5.10-6.00)	9.10 (8.20-10.2)	14.5 (12.9-16.1)	19.5 (15.8-23.0)	1764
Gender							
Males	11-12	7.91 (7.19-8.70)	8.31 (7.35-9.15)	12.5 (11.4-13.5)	19.3 (15.7-21.4)	24.1 (22.2-28.5)	966
	13-14‡	6.36 (5.62-7.20)	6.40 (5.70-7.30)	10.2 (8.70-11.5)	15.5 (13.2-19.8)	22.1 (16.7-26.9)	1031
Females	11-12	5.10 (4.70-5.53)	5.27 (4.67-5.64)	8.57 (7.87-9.30)	12.5 (11.0-14.9)	17.5 (14.9-20.5)	938
	13-14‡	3.96 (3.60-4.35)	4.00 (3.60-4.60)	7.20 (6.40-7.70)	11.8 (9.70-13.6)	15.1 (13.9-17.3)	1134
Race/ethnicity							
Mexican Americans	11-12	4.79 (4.07-5.64)	5.18 (3.92-6.33)	7.91 (6.18-9.48)	10.5 (8.50-12.6)	12.1 (10.0-14.4)	211
	13-14‡	3.47 (2.90-4.16)	3.70 (3.00-4.40)	5.20 (4.60-6.40)	8.80 (6.40-10.3)	10.8 (9.20-11.8)	332
Non-Hispanic blacks	11-12	6.35 (5.41-7.46)	6.57 (5.71-7.65)	11.3 (9.74-13.9)	21.8 (13.9-31.3)	30.7 (21.6-45.1)	485
	13-14‡	5.32 (4.12-6.88)	5.30 (4.30-6.80)	10.2 (7.60-13.7)	17.4 (12.4-24.5)	24.5 (16.3-39.7)	455
Non-Hispanic whites	11-12	6.71 (6.15-7.32)	6.83 (6.07-7.73)	10.7 (9.89-12.2)	15.7 (14.8-18.1)	21.3 (18.7-23.5)	666
	13-14‡	5.31 (4.72-5.98)	5.70 (5.10-6.40)	8.90 (8.20-9.90)	14.1 (12.2-15.6)	18.0 (15.5-20.4)	861
All Hispanics	11-12	4.63 (3.86-5.55)	5.18 (4.41-6.19)	8.10 (6.64-9.78)	11.0 (9.96-12.6)	13.4 (11.5-16.1)	406
	13-14‡	3.51 (3.09-3.98)	3.70 (3.20-4.20)	5.50 (4.90-6.40)	8.80 (8.00-9.70)	10.8 (9.70-12.1)	537
Asians	11-12	7.10 (5.80-8.68)	7.53 (5.96-9.25)	12.6 (10.8-17.0)	24.6 (19.1-33.3)	35.1 (26.4-42.3)	291
	13-14‡	6.18 (5.08-7.52)	6.30 (5.00-7.90)	13.2 (9.40-15.4)	23.8 (15.2-33.9)	33.6 (20.1-69.0)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.2.

‡. See Calculation of PFOS and PFOA as the Sum of Isomers for additional information about Survey years 2013-2014.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorooctane sulfonic acid (PFOS) (2013 – 2014)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	3.88 (3.53-4.27)	3.75 (3.44-4.17)	5.56 (4.83-6.33)	7.99 (7.02-9.53)	11.0 (9.03-12.4)	639
Age group							
3-5 years	13-14	3.38 (3.04-3.77)	3.41 (2.84-3.78)	4.78 (3.98-6.32)	7.18 (5.50-8.71)	8.82 (7.18-11.0)	181
6-11 years	13-14	4.15 (3.76-4.58)	4.02 (3.54-4.45)	5.77 (5.10-6.43)	8.78 (6.75-11.8)	12.4 (9.32-14.1)	458
Gender							
Males	13-14	4.07 (3.56-4.65)	4.13 (3.44-4.76)	6.19 (5.29-7.18)	8.78 (7.18-11.8)	11.8 (8.01-15.4)	343
Females	13-14	3.70 (3.38-4.06)	3.54 (3.24-3.96)	4.88 (4.45-5.70)	7.02 (6.33-8.71)	9.44 (7.17-12.0)	296
Race/ethnicity							
All Hispanics	13-14	3.53 (3.13-3.99)	3.41 (2.95-3.84)	4.71 (4.13-5.65)	7.60 (5.43-9.44)	9.32 (6.50-11.0)	220
Other	13-14	4.01 (3.62-4.44)	3.96 (3.44-4.48)	5.97 (5.02-6.49)	8.06 (6.98-11.3)	12.0 (9.10-13.6)	419

‡See Calculation of PFOS and PFOA as the Sum of Isomers for additional information.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum n-Perfluorooctane sulfonic acid (n-PFOS) (2013 – 2014) Linear PFOS isomer

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	3.45 (3.10-3.85)	3.50 (3.20-3.90)	6.00 (5.20-6.60)	9.90 (8.50-11.3)	14.0 (11.0-16.7)	2165
Age group							
12-19 years	13-14	2.59 (2.29-2.93)	2.70 (2.30-2.90)	3.90 (3.40-4.80)	6.20 (4.80-7.00)	7.10 (6.20-8.60)	401
20 years and older	13-14	3.59 (3.21-4.02)	3.70 (3.40-4.10)	6.30 (5.50-7.20)	10.3 (9.10-12.3)	15.1 (11.9-17.7)	1764
Gender							
Males	13-14	4.26 (3.74-4.86)	4.20 (3.70-4.80)	6.60 (6.00-7.90)	10.8 (9.30-15.1)	15.4 (12.1-20.2)	1031
Females	13-14	2.83 (2.56-3.13)	2.90 (2.60-3.20)	4.90 (4.40-5.60)	8.50 (7.30-9.90)	11.6 (9.90-13.0)	1134
Race/ethnicity							
Mexican Americans	13-14	2.38 (1.99-2.84)	2.40 (2.10-2.80)	3.50 (3.00-3.90)	6.10 (3.90-8.00)	7.90 (6.20-8.90)	332
Non-Hispanic blacks	13-14	4.02 (3.03-5.34)	4.00 (3.00-5.50)	7.50 (5.30-10.9)	14.4 (9.00-20.3)	19.3 (14.4-32.6)	455
Non-Hispanic whites	13-14	3.58 (3.17-4.06)	3.70 (3.40-4.20)	6.10 (5.40-6.70)	10.0 (8.60-11.0)	13.0 (10.8-15.1)	861
All Hispanics	13-14	2.43 (2.14-2.76)	2.50 (2.10-2.80)	3.90 (3.30-4.50)	6.20 (4.90-7.60)	8.00 (7.10-8.80)	537
Asians	13-14	4.79 (3.83-5.99)	4.60 (4.00-6.20)	9.90 (8.00-12.5)	19.2 (12.4-32.5)	31.1 (17.0-64.8)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum n-Perfluorooctane sulfonic acid (n-PFOS) (2013 – 2014) Linear PFOS isomer

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	2.51 (2.30-2.74)	2.47 (2.17-2.73)	3.57 (3.10-4.08)	5.60 (4.50-6.34)	7.72 (5.75-8.68)	639
Age group							
3-5 years	13-14	2.22 (2.01-2.46)	2.11 (1.74-2.33)	3.28 (2.69-4.15)	5.52 (3.95-6.34)	6.19 (5.72-7.72)	181
6-11 years	13-14	2.67 (2.43-2.92)	2.65 (2.38-2.78)	3.72 (3.20-4.11)	5.62 (4.52-7.75)	8.41 (5.91-9.54)	458
Gender							
Males	13-14	2.67 (2.33-3.06)	2.67 (2.20-2.93)	4.14 (3.51-4.52)	5.74 (4.36-8.37)	8.83 (5.74-10.3)	343
Females	13-14	2.36 (2.19-2.54)	2.24 (2.03-2.48)	3.07 (2.84-3.33)	4.97 (4.02-5.55)	6.08 (5.18-7.72)	296
Race/ethnicity							
All Hispanics	13-14	2.29 (2.00-2.61)	2.18 (1.93-2.51)	3.07 (2.73-3.80)	4.96 (3.52-6.51)	5.94 (4.29-9.62)	220
Other	13-14	2.59 (2.35-2.85)	2.55 (2.19-2.78)	3.82 (3.09-4.25)	5.71 (4.50-7.14)	7.75 (5.74-9.04)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum branched Perfluoromethylheptane sulfonic acid (Sm-PFOS) (2013 – 2014)

Perfluoromethylheptane sulfonic acid isomers

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	1.39 (1.25-1.55)	1.50 (1.40-1.60)	2.70 (2.50-2.90)	4.00 (3.60-4.50)	5.10 (4.60-5.80)	2165
Age group							
12-19 years	13-14	.897 (.800-1.01)	1.00 (.800-1.10)	1.40 (1.20-1.50)	1.90 (1.50-2.10)	2.30 (1.80-3.00)	401
20 years and older	13-14	1.47 (1.32-1.65)	1.60 (1.50-1.80)	2.90 (2.60-3.10)	4.20 (3.70-4.70)	5.30 (4.70-6.00)	1764
Gender							
Males	13-14	1.94 (1.72-2.19)	2.10 (1.80-2.40)	3.20 (2.90-3.60)	4.60 (4.00-5.60)	5.90 (4.90-7.00)	1031
Females	13-14	1.01 (.914-1.12)	1.10 (.900-1.20)	1.90 (1.70-2.10)	3.30 (3.00-3.60)	4.20 (3.70-4.70)	1134
Race/ethnicity							
Mexican Americans	13-14	1.00 (.823-1.23)	1.10 (.900-1.30)	1.70 (1.50-2.20)	2.70 (2.20-3.20)	3.70 (2.90-4.20)	332
Non-Hispanic blacks	13-14	1.15 (.942-1.40)	1.20 (1.00-1.50)	2.40 (1.90-3.00)	4.40 (3.40-5.20)	5.50 (4.50-7.00)	455
Non-Hispanic whites	13-14	1.61 (1.41-1.82)	1.70 (1.50-2.00)	3.00 (2.70-3.20)	4.20 (3.70-4.90)	5.50 (4.80-6.00)	861
All Hispanics	13-14	.987 (.859-1.13)	1.00 (.900-1.20)	1.80 (1.60-2.10)	2.70 (2.40-3.20)	3.50 (2.90-4.00)	537
Asians	13-14	1.10 (.955-1.28)	1.20 (1.00-1.40)	2.30 (1.60-2.70)	3.50 (2.50-4.50)	4.40 (3.50-7.20)	234

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum branched Perfluoromethylheptane sulfonic acid (Sm-PFOS) (2013 – 2014) Perfluoromethylheptane sulfonic acid isomers

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	1.23 (1.09-1.40)	1.28 (1.05-1.45)	1.90 (1.64-2.21)	3.02 (2.57-3.92)	4.07 (3.23-4.78)	639
Age group							
3-5 years	13-14	1.03 (.874-1.21)	1.00 (.820-1.32)	1.65 (1.40-2.14)	2.63 (2.14-3.23)	3.60 (2.21-4.23)	181
6-11 years	13-14	1.35 (1.19-1.52)	1.41 (1.19-1.51)	2.03 (1.74-2.48)	3.32 (2.59-4.10)	4.25 (3.26-6.00)	458
Gender							
Males	13-14	1.26 (1.08-1.48)	1.31 (1.04-1.46)	2.07 (1.67-2.56)	3.44 (2.56-4.25)	4.25 (3.02-5.55)	343
Females	13-14	1.20 (1.04-1.39)	1.22 (1.03-1.48)	1.79 (1.53-2.25)	2.90 (2.18-3.60)	3.60 (2.54-5.28)	296
Race/ethnicity							
All Hispanics	13-14	1.13 (.997-1.27)	1.12 (.990-1.33)	1.67 (1.45-1.89)	2.28 (1.93-2.94)	3.14 (2.21-3.63)	220
Other	13-14	1.27 (1.11-1.46)	1.32 (1.13-1.49)	2.05 (1.66-2.48)	3.48 (2.65-4.10)	4.23 (3.60-5.28)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonamide (PFOSA or FOSA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.355 (.296-.426)	.400 (.300-.400)	.700 (.500-.800)	1.00 (.900-1.40)	1.40 (1.00-2.00)	1562
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.300-.400)	2094
	05-06	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.500)	2120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100
	09-10	*	< LOD	< LOD	< LOD	< LOD	2233
Age group 12-19 years	99-00	.429 (.370-.498)	.400 (.400-.500)	.700 (.700-.900)	1.10 (.900-1.40)	1.60 (1.10-2.90)	543
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.200-.500)	640
	05-06	*	< LOD	< LOD	.200 (.100-.300)	.300 (.200-.500)	640
	07-08	*	< LOD	< LOD	< LOD	< LOD	357
	09-10	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	99-00	.344 (.283-.418)	.300 (.300-.400)	.600 (.500-.800)	1.00 (.800-1.40)	1.40 (1.00-2.00)	1019
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.300-.400)	1454
	05-06	*	< LOD	.100 (<LOD-.200)	.200 (.200-.300)	.300 (.200-.500)	1480
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743
	09-10	*	< LOD	< LOD	< LOD	< LOD	1869
Gender Males	99-00	.351 (.289-.426)	.400 (.300-.400)	.600 (.500-.700)	.900 (.700-1.30)	1.30 (.900-1.90)	743
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.300 (.200-.300)	.300 (.200-.500)	1053
	05-06	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.600)	1048
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059
	09-10	*	< LOD	< LOD	< LOD	< LOD	1075
Females	99-00	.358 (.298-.431)	.300 (.300-.500)	.700 (.500-.900)	1.10 (.900-1.40)	1.50 (1.20-2.00)	819
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.300-.500)	1041
	05-06	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.400)	1072
	07-08	*	< LOD	< LOD	< LOD	< LOD	1041
	09-10	*	< LOD	< LOD	< LOD	< LOD	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonamide (PFOSA or FOSA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.285 (.245-.332)	.300 (.200-.400)	.500 (.400-.600)	.800 (.700-1.00)	1.10 (.800-1.60)	584
	03-04	*	.100 (.100-.100)	.100 (.100-.100)	.100 (.100-.100)	.200 (.100-.300)	485
	05-06	*	< LOD	< LOD	.200 (<LOD-.300)	.200 (<LOD-5.00)	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	.347 (.289-.417)	.300 (.300-.400)	.600 (.500-.800)	1.00 (.700-1.70)	1.70 (.900-2.60)	303
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.200-.500)	538
	05-06	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.400)	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	99-00	.382 (.305-.479)	.400 (.300-.500)	.700 (.600-.900)	1.10 (.900-1.40)	1.50 (1.10-2.00)	519
	03-04	*	.100 (.100-.100)	.100 (.100-.200)	.300 (.200-.300)	.300 (.300-.500)	962
	05-06	*	< LOD	.100 (.100-.200)	.200 (.200-.300)	.300 (.200-.500)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	< LOD	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluorooctane sulfonamide (PFOSA or FOSA) (2011 – 2012)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	1904
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1560
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	966
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	938
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	211
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	666
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluorooctane sulfonamide (PFOSA or FOSA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	639
Age group							
3-5 years	13-14	*	< LOD	< LOD	< LOD	.110 (<LOD-.170)	181
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	458
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	220
Other	13-14	*	< LOD	< LOD	< LOD	< LOD	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.642 (.596-.691)	.600 (.500-.700)	1.10 (1.00-1.20)	1.60 (1.50-1.80)	2.30 (1.90-2.70)	1562
	03-04	*	< LOD	< LOD	< LOD	< LOD	2094
	05-06	*	< LOD	< LOD	< LOD	.300 (<LOD-.300)	2120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2100
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	2233
Age group 12-19 years	99-00	.826 (.764-.893)	.800 (.700-.800)	1.20 (1.10-1.30)	1.70 (1.50-2.00)	2.40 (1.90-3.30)	543
	03-04	*	< LOD	< LOD	< LOD	< LOD	640
	05-06	*	< LOD	< LOD	< LOD	.200 (<LOD-.400)	640
	07-08	*	< LOD	< LOD	< LOD	< LOD	357
	09-10	*	< LOD	< LOD	< LOD	< LOD	364
20 years and older	99-00	.614 (.569-.663)	.600 (.500-.700)	1.00 (.900-1.10)	1.60 (1.50-1.80)	2.30 (1.80-2.70)	1019
	03-04	*	< LOD	< LOD	< LOD	< LOD	1454
	05-06	*	< LOD	< LOD	< LOD	.300 (<LOD-.300)	1480
	07-08	*	< LOD	< LOD	< LOD	< LOD	1743
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1869
Gender Males	99-00	.619 (.572-.671)	.600 (.500-.700)	1.00 (.900-1.10)	1.50 (1.30-1.80)	1.90 (1.60-2.90)	743
	03-04	*	< LOD	< LOD	< LOD	< LOD	1053
	05-06	*	< LOD	< LOD	< LOD	.300 (.200-.300)	1048
	07-08	*	< LOD	< LOD	< LOD	< LOD	1059
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1075
Females	99-00	.662 (.599-.732)	.700 (.500-.700)	1.10 (1.00-1.20)	1.70 (1.50-2.20)	2.50 (2.00-2.80)	819
	03-04	*	< LOD	< LOD	< LOD	< LOD	1041
	05-06	*	< LOD	< LOD	< LOD	.300 (<LOD-.300)	1072
	07-08	*	< LOD	< LOD	< LOD	< LOD	1041
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.100)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.577 (.477-.698)	.600 (.400-.700)	1.00 (.800-1.20)	1.70 (1.30-2.00)	2.50 (1.90-3.00)	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	< LOD	< LOD	499
	07-08	*	< LOD	< LOD	< LOD	< LOD	391
	09-10	*	< LOD	< LOD	< LOD	< LOD	461
Non-Hispanic blacks	99-00	.555 (.476-.646)	.500 (.500-.600)	.900 (.700-1.00)	1.50 (1.20-1.90)	2.20 (1.40-3.20)	303
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.500)	538
	05-06	*	< LOD	< LOD	< LOD	< LOD	544
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	391
Non-Hispanic whites	99-00	.660 (.606-.717)	.700 (.600-.700)	1.10 (1.00-1.20)	1.70 (1.50-1.90)	2.40 (1.90-2.80)	519
	03-04	*	< LOD	< LOD	< LOD	< LOD	962
	05-06	*	< LOD	< LOD	< LOD	.300 (.200-.400)	935
	07-08	*	< LOD	< LOD	< LOD	< LOD	931
	09-10	*	< LOD	< LOD	< LOD	.100 (<LOD-.200)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA) (2011 – 2012)‡

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.130)	1904
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	344
20 years and older	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.150)	1560
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.140)	966
Females	11-12	*	< LOD	< LOD	< LOD	.100 (<LOD-.130)	938
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.100 (<LOD-.160)	211
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	485
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	.120 (<LOD-.140)	666
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	406
Asians	11-12	*	< LOD	< LOD	< LOD	.110 (<LOD-.200)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum 2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	639
Age group							
3-5 years	13-14	*	< LOD	< LOD	< LOD	< LOD	181
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	458
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	.100 (<LOD-.140)	343
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	220
Other	13-14	*	< LOD	< LOD	< LOD	< LOD	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	.846 (.738-.970)	.870 (.780-.960)	1.40 (1.13-1.66)	2.18 (1.83-2.62)	2.79 (2.44-3.23)	1562
	03-04	*	< LOD	.610 (<LOD-.610)	.870 (.780-.960)	1.13 (.960-1.31)	2094
	05-06	.410 (.372-.451)	.440 (.350-.440)	.700 (.610-.780)	1.22 (1.13-1.22)	1.57 (1.48-1.74)	2120
	07-08	.303 (.277-.330)	.300 (.300-.300)	.500 (.400-.600)	1.00 (.800-1.00)	1.30 (1.20-1.40)	2100
	09-10	.198 (.184-.213)	.200 (.200-.200)	.300 (.300-.300)	.700 (.600-.700)	1.00 (.900-1.00)	2233
Age group 12-19 years	99-00	1.17 (1.03-1.34)	1.22 (1.05-1.31)	1.83 (1.31-2.18)	2.70 (2.18-3.05)	3.23 (2.79-4.10)	543
	03-04	*	< LOD	.610 (<LOD-.700)	.960 (.780-1.13)	1.31 (1.05-1.57)	640
	05-06	.432 (.380-.490)	.440 (.350-.520)	.780 (.610-.870)	1.13 (.960-1.31)	1.48 (1.13-1.66)	640
	07-08	.340 (.305-.379)	.300 (.300-.400)	.600 (.500-.600)	1.00 (.800-1.50)	1.60 (1.00-2.00)	357
	09-10	.235 (.203-.273)	.300 (.200-.300)	.400 (.300-.500)	.700 (.500-.900)	.900 (.600-1.70)	364
20 years and older	99-00	.800 (.693-.923)	.780 (.700-.960)	1.31 (1.13-1.57)	2.09 (1.74-2.44)	2.70 (2.27-3.14)	1019
	03-04	*	< LOD	.610 (<LOD-.610)	.870 (.780-.960)	1.05 (.960-1.40)	1454
	05-06	.406 (.369-.448)	.440 (.350-.440)	.700 (.610-.780)	1.22 (1.13-1.31)	1.66 (1.48-1.74)	1480
	07-08	.297 (.270-.327)	.300 (.300-.300)	.500 (.400-.600)	1.00 (.800-1.00)	1.20 (1.10-1.40)	1743
	09-10	.193 (.178-.210)	.200 (.200-.200)	.300 (.300-.300)	.700 (.600-.800)	1.00 (.900-1.00)	1869
Gender Males	99-00	.885 (.756-1.04)	.870 (.780-1.05)	1.40 (1.13-1.74)	2.27 (2.01-2.79)	2.79 (2.44-3.66)	743
	03-04	*	< LOD	.610 (<LOD-.610)	.960 (.780-1.05)	1.13 (.960-1.48)	1053
	05-06	.435 (.400-.472)	.440 (.350-.440)	.780 (.700-.870)	1.22 (1.13-1.31)	1.66 (1.40-1.74)	1048
	07-08	.307 (.281-.334)	.300 (.300-.300)	.500 (.400-.600)	.900 (.800-1.00)	1.30 (1.10-1.40)	1059
	09-10	.200 (.187-.214)	.200 (.200-.200)	.300 (.300-.400)	.700 (.600-.800)	1.00 (.800-1.10)	1075
Females	99-00	.813 (.717-.923)	.780 (.700-.960)	1.31 (1.13-1.66)	2.01 (1.74-2.35)	2.62 (2.27-3.23)	819
	03-04	*	< LOD	< LOD	.870 (.780-.960)	.960 (.870-1.57)	1041
	05-06	.387 (.342-.438)	.350 (.350-.440)	.700 (.610-.780)	1.13 (1.05-1.31)	1.57 (1.40-1.83)	1072
	07-08	.299 (.267-.334)	.300 (.300-.300)	.500 (.400-.600)	1.00 (.800-1.10)	1.30 (1.10-1.70)	1041
	09-10	.196 (.178-.216)	.200 (.200-.200)	.300 (.300-.300)	.600 (.500-.800)	1.00 (.800-1.00)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.174, 0.523, 0.174, 0.174, and 0.087 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	.668 (.545-.817)	.700 (.520-.780)	1.13 (.870-1.31)	1.83 (1.40-2.35)	2.35 (1.74-3.92)	584
	03-04	*	< LOD	< LOD	.610 (<LOD-.780)	.780 (<LOD-1.13)	485
	05-06	.292 (.245-.348)	.260 (.260-.350)	.440 (.350-.700)	.780 (.610-1.05)	1.05 (.870-1.22)	499
	07-08	*	.200 (<LOD-.200)	.300 (.300-.300)	.500 (.400-.800)	.800 (.500-1.10)	391
	09-10	.139 (.118-.163)	.100 (.100-.200)	.300 (.200-.300)	.500 (.400-.600)	.700 (.500-1.00)	461
Non-Hispanic blacks	99-00	.989 (.853-1.15)	1.05 (.780-1.22)	1.57 (1.31-1.83)	2.35 (1.92-2.79)	3.14 (2.27-4.27)	303
	03-04	*	< LOD	.700 (<LOD-.780)	.960 (.780-1.22)	1.31 (.960-1.57)	538
	05-06	.418 (.361-.486)	.440 (.350-.520)	.700 (.610-.870)	1.22 (1.05-1.48)	1.66 (1.48-2.01)	544
	07-08	.330 (.304-.357)	.300 (.300-.300)	.500 (.500-.700)	1.00 (.800-1.20)	1.40 (1.20-1.70)	419
	09-10	.193 (.166-.225)	.200 (.200-.200)	.300 (.300-.400)	.600 (.400-.800)	.900 (.600-1.10)	391
Non-Hispanic whites	99-00	.883 (.758-1.03)	.870 (.780-1.05)	1.40 (1.22-1.74)	2.18 (1.92-2.70)	2.79 (2.44-3.66)	519
	03-04	*	< LOD	.610 (<LOD-.700)	.870 (.780-.960)	1.13 (.960-1.40)	962
	05-06	.428 (.380-.483)	.440 (.350-.520)	.780 (.700-.870)	1.22 (1.13-1.31)	1.66 (1.40-1.83)	935
	07-08	.332 (.296-.372)	.300 (.300-.300)	.600 (.500-.700)	1.00 (.800-1.10)	1.30 (1.10-1.60)	931
	09-10	.216 (.201-.232)	.200 (.200-.300)	.300 (.300-.400)	.700 (.600-.800)	1.00 (.900-1.10)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.174, 0.523, 0.174, 0.174, and 0.087 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.100 (<LOD-.160)	.250 (.200-.310)	.500 (.440-.530)	.690 (.580-.850)	1904
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.500-.900)	2168
Age group							
12-19 years	11-12	.134 (.110-.163)	.110 (.090-.170)	.260 (.170-.350)	.420 (.350-.480)	.510 (.420-.850)	344
	13-14	*	.100 (<LOD-.100)	.200 (.200-.300)	.500 (.400-.500)	.600 (.500-.900)	402
20 years and older	11-12	*	.100 (<LOD-.160)	.250 (.200-.310)	.510 (.460-.550)	.700 (.640-.840)	1560
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.500-1.00)	1766
Gender							
Males	11-12	*	.110 (<LOD-.160)	.270 (.190-.350)	.490 (.390-.660)	.720 (.510-1.06)	966
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.500)	.600 (.400-.900)	1032
Females	11-12	*	.100 (<LOD-.160)	.250 (.200-.300)	.510 (.410-.540)	.690 (.560-.810)	938
	13-14	*	< LOD	.200 (.200-.200)	.400 (.300-.600)	.700 (.500-1.10)	1136
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.220 (.160-.310)	.440 (.310-.590)	.590 (.390-.970)	211
	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.500)	.500 (.300-.500)	332
Non-Hispanic blacks	11-12	*	.100 (<LOD-.150)	.240 (.170-.340)	.520 (.390-.660)	.780 (.580-1.06)	485
	13-14	*	< LOD	.200 (.100-.300)	.400 (.200-1.00)	.800 (.400-1.60)	455
Non-Hispanic whites	11-12	*	.120 (<LOD-.170)	.280 (.230-.340)	.510 (.460-.580)	.700 (.600-.990)	666
	13-14	*	.100 (<LOD-.100)	.200 (.200-.300)	.500 (.400-.500)	.700 (.500-1.00)	862
All Hispanics	11-12	*	< LOD	.170 (.130-.230)	.350 (.260-.450)	.510 (.380-.740)	406
	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.200-.300)	.300 (.200-.500)	537
Asians	11-12	*	< LOD	.170 (.130-.260)	.370 (.300-.520)	.580 (.420-.860)	291
	13-14	*	< LOD	.100 (<LOD-.200)	.200 (.100-.400)	.400 (.200-.600)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.087 and 0.1, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum 2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	.110 (<LOD-.150)	.260 (.190-.390)	.650 (.360-1.02)	1.02 (.650-1.81)	639
Age group							
3-5 years	13-14	*	.110 (<LOD-.190)	.240 (.170-.550)	.880 (.250-1.81)	1.02 (.530-3.15)	181
6-11 years	13-14	*	.110 (<LOD-.140)	.270 (.180-.370)	.570 (.350-.940)	.940 (.570-1.92)	458
Gender							
Males	13-14	*	.100 (<LOD-.170)	.270 (.180-.480)	.870 (.360-1.37)	1.14 (.690-1.99)	343
Females	13-14	*	.120 (<LOD-.140)	.260 (.180-.360)	.490 (.290-.860)	.810 (.590-.970)	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	.160 (.100-.280)	.440 (.250-.650)	.650 (.440-1.02)	220
Other	13-14	*	.130 (<LOD-.190)	.280 (.220-.420)	.810 (.400-1.04)	1.14 (.860-1.99)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroundecanoic acid (PFUnDA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.300-.700)	1562
	03-04	*	< LOD	< LOD	< LOD	.600 (<LOD-1.30)	2094
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.800)	.700 (.600-1.20)	2120
	07-08	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.600 (.500-.800)	2100
	09-10	.172 (.151-.196)	.200 (.100-.200)	.300 (.200-.400)	.600 (.400-.800)	.900 (.600-1.10)	2233
Age group 12-19 years	99-00	*	< LOD	< LOD	< LOD	.200 (<LOD-.300)	543
	03-04	*	< LOD	< LOD	< LOD	.300 (<LOD-1.10)	640
	05-06	*	< LOD	< LOD	.300 (.200-.500)	.500 (.300-.900)	640
	07-08	*	< LOD	< LOD	.200 (<LOD-.200)	.300 (.200-.300)	357
	09-10	*	.100 (<LOD-.100)	.200 (.100-.200)	.300 (.200-.600)	.400 (.200-.900)	364
20 years and older	99-00	*	< LOD	< LOD	.300 (<LOD-.500)	.500 (.300-.700)	1019
	03-04	*	< LOD	< LOD	.300 (<LOD-.600)	.600 (<LOD-1.40)	1454
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.800)	.800 (.600-1.10)	1480
	07-08	*	< LOD	.200 (.200-.300)	.400 (.300-.600)	.600 (.500-.900)	1743
	09-10	.182 (.160-.207)	.200 (.200-.200)	.300 (.300-.400)	.600 (.400-.800)	.900 (.700-1.20)	1869
Gender Males	99-00	*	< LOD	< LOD	.300 (<LOD-.500)	.500 (.300-.600)	743
	03-04	*	< LOD	< LOD	.400 (<LOD-1.00)	.700 (<LOD-2.30)	1053
	05-06	*	< LOD	.300 (.200-.400)	.600 (.400-.700)	.800 (.600-1.10)	1048
	07-08	*	< LOD	.200 (<LOD-.300)	.400 (.300-.500)	.700 (.500-1.00)	1059
	09-10	.170 (.147-.196)	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.900)	.800 (.500-1.20)	1075
Females	99-00	*	< LOD	< LOD	.300 (<LOD-.400)	.400 (.200-.800)	819
	03-04	*	< LOD	< LOD	< LOD	.400 (<LOD-.700)	1041
	05-06	*	< LOD	.300 (<LOD-.400)	.500 (.400-.700)	.700 (.500-1.10)	1072
	07-08	*	< LOD	.200 (<LOD-.200)	.400 (.300-.500)	.600 (.400-.700)	1041
	09-10	.175 (.153-.199)	.200 (.100-.200)	.300 (.200-.400)	.600 (.400-.800)	.900 (.700-1.20)	1158

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroundecanoic acid (PFUnDA) (1999 – 2010)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	584
	03-04	*	< LOD	< LOD	< LOD	< LOD	485
	05-06	*	< LOD	< LOD	.300 (<LOD-.700)	.500 (.300-1.00)	499
	07-08	*	< LOD	< LOD	.300 (<LOD-.400)	.300 (<LOD-1.40)	391
	09-10	*	.100 (.100-.100)	.200 (.200-.200)	.300 (.300-.400)	.400 (.300-.600)	461
Non-Hispanic blacks	99-00	*	< LOD	.300 (<LOD-.500)	.600 (.300-1.00)	.900 (.600-1.80)	303
	03-04	*	< LOD	< LOD	.600 (<LOD-1.40)	.900 (.300-2.90)	538
	05-06	*	< LOD	.300 (<LOD-.500)	.600 (.400-1.50)	1.20 (.600-2.70)	544
	07-08	*	< LOD	.300 (.200-.400)	.500 (.400-.700)	.800 (.600-1.20)	419
	09-10	.237 (.199-.283)	.200 (.200-.200)	.400 (.300-.500)	.800 (.500-1.10)	1.30 (.800-1.80)	391
Non-Hispanic whites	99-00	*	< LOD	< LOD	.200 (<LOD-.300)	.300 (<LOD-.800)	519
	03-04	*	< LOD	< LOD	< LOD	.500 (<LOD-.900)	962
	05-06	*	< LOD	.300 (.200-.400)	.500 (.400-.700)	.600 (.400-1.50)	935
	07-08	*	< LOD	.200 (<LOD-.200)	.300 (.300-.500)	.500 (.400-.600)	931
	09-10	.162 (.136-.193)	.200 (.100-.200)	.300 (.200-.400)	.500 (.300-.800)	.800 (.500-1.00)	1031

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.3, 0.2, 0.2, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Serum Perfluoroundecanoic acid (PFUnDA) (2011 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.120 (.100-.140)	.220 (.180-.250)	.380 (.310-.520)	.620 (.440-.790)	1904
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.600)	2168
Age group							
12-19 years	11-12	*	< LOD	.110 (<LOD-.140)	.180 (.140-.220)	.250 (.190-.390)	344
	13-14	*	< LOD	< LOD	.200 (.100-.200)	.200 (.200-.300)	402
20 years and older	11-12	.146 (.129-.165)	.130 (.110-.150)	.230 (.190-.280)	.420 (.330-.530)	.660 (.490-.840)	1560
	13-14	*	< LOD	.200 (.100-.200)	.300 (.300-.500)	.500 (.400-.700)	1766
Gender							
Males	11-12	*	.120 (.100-.150)	.220 (.180-.260)	.340 (.290-.480)	.590 (.390-.820)	966
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.500)	.500 (.400-.700)	1032
Females	11-12	*	.120 (.100-.140)	.210 (.180-.270)	.420 (.320-.540)	.650 (.520-.740)	938
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.500 (.400-.600)	1136
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.150 (.130-.180)	.230 (.190-.300)	.310 (.230-.330)	211
	13-14	*	< LOD	< LOD	.200 (.100-.300)	.200 (.100-.600)	332
Non-Hispanic blacks	11-12	.164 (.135-.199)	.140 (.110-.190)	.260 (.200-.390)	.530 (.350-.840)	.840 (.520-1.26)	485
	13-14	*	.100 (<LOD-.200)	.200 (.100-.400)	.500 (.300-.700)	.700 (.500-.900)	455
Non-Hispanic whites	11-12	*	.110 (<LOD-.140)	.200 (.160-.240)	.330 (.280-.410)	.450 (.330-.690)	666
	13-14	*	< LOD	.200 (.100-.200)	.300 (.200-.400)	.400 (.300-.600)	862
All Hispanics	11-12	*	.110 (<LOD-.130)	.180 (.160-.210)	.310 (.230-.390)	.420 (.300-.630)	406
	13-14	*	< LOD	.100 (<LOD-.100)	.200 (.100-.200)	.200 (.100-.600)	537
Asians	11-12	.338 (.277-.412)	.330 (.220-.510)	.840 (.630-1.01)	1.38 (1.02-2.33)	2.40 (1.33-3.41)	291
	13-14	.274 (.231-.326)	.300 (.200-.400)	.600 (.400-.800)	1.00 (.900-1.20)	1.50 (1.00-2.40)	236

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.1 and 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Special Sample of Serum PFAS in Children 3 to 11 Years Old, 2013 – 2014 Serum Perfluoroundecanoic acid (PFUnDA) (2013 – 2014)

Geometric mean and selected percentiles of serum concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	.100 (<LOD-.130)	.200 (.150-.270)	.280 (.210-.480)	639
Age group							
3-5 years	13-14	*	< LOD	.110 (<LOD-.140)	.250 (.110-.480)	.370 (.140-.650)	181
6-11 years	13-14	*	< LOD	.100 (<LOD-.130)	.190 (.160-.240)	.250 (.200-.310)	458
Gender							
Males	13-14	*	< LOD	.100 (<LOD-.140)	.190 (.150-.270)	.300 (.180-.530)	343
Females	13-14	*	< LOD	.110 (<LOD-.130)	.200 (.140-.280)	.280 (.200-.440)	296
Race/ethnicity							
All Hispanics	13-14	*	< LOD	.100 (<LOD-.140)	.190 (.150-.220)	.250 (.190-.370)	220
Other	13-14	*	< LOD	.110 (<LOD-.140)	.200 (.140-.300)	.300 (.200-.480)	419

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PFAS_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	11.0 (9.88-12.3)	12.2 (11.0-13.6)	25.5 (23.5-28.6)	48.3 (39.8-59.3)	74.4 (68.1-83.4)	2541
	01-02	10.8 (10.0-11.7)	11.4 (10.7-12.5)	27.4 (24.8-29.7)	58.2 (51.3-63.5)	87.6 (73.7-102)	2782
	03-04	9.89 (9.12-10.7)	10.3 (9.22-11.8)	23.3 (21.7-25.2)	47.9 (41.3-54.4)	72.6 (61.4-90.2)	2605
	05-06	8.32 (7.28-9.51)	8.93 (7.78-10.4)	20.7 (18.2-23.7)	44.6 (37.6-52.8)	67.1 (57.4-77.7)	2548
	07-08	7.24 (6.47-8.09)	8.42 (7.20-9.50)	18.3 (16.6-20.4)	37.3 (31.3-43.3)	58.8 (48.7-69.1)	2604
	09-10	6.46 (5.76-7.24)	6.70 (5.97-7.49)	15.4 (13.4-17.1)	31.0 (26.8-36.1)	48.3 (43.1-55.4)	2749
Age group 6-11 years	99-00	28.4 (23.7-34.0)	29.0 (24.3-35.0)	59.0 (40.2-70.6)	92.8 (70.6-154)	154 (77.8-287)	328
	01-02	24.1 (21.0-27.6)	26.6 (19.2-31.2)	49.3 (44.4-66.8)	120 (83.7-137)	169 (132-237)	393
	03-04	24.4 (20.3-29.2)	25.2 (21.7-28.7)	45.9 (36.3-66.5)	105 (79.1-154)	184 (105-263)	342
	05-06	21.3 (19.2-23.7)	23.5 (19.4-26.6)	46.1 (37.1-56.9)	78.6 (64.3-104)	116 (88.4-137)	356
	07-08	15.4 (12.3-19.3)	17.6 (13.8-20.8)	33.8 (27.0-47.5)	69.9 (51.3-104)	131 (69.9-221)	389
	09-10	11.6 (9.51-14.1)	12.6 (10.4-14.5)	28.4 (20.2-37.8)	63.9 (47.4-76.8)	87.8 (65.4-212)	415
12-19 years	99-00	18.4 (15.7-21.6)	20.4 (16.1-25.1)	36.9 (31.5-42.1)	63.7 (48.4-82.6)	90.2 (67.5-122)	752
	01-02	16.7 (14.3-19.6)	17.9 (15.3-22.3)	40.0 (34.1-45.3)	81.1 (66.1-95.5)	122 (96.3-143)	742
	03-04	15.9 (14.0-18.1)	17.9 (16.1-19.6)	35.9 (28.7-46.5)	64.7 (51.2-86.3)	110 (71.9-136)	729
	05-06	14.2 (11.9-16.9)	14.8 (11.5-18.3)	31.8 (24.2-41.0)	62.6 (44.0-85.0)	94.2 (67.7-134)	702
	07-08	11.6 (9.56-14.2)	14.6 (11.5-16.6)	27.2 (22.0-31.5)	46.7 (35.4-58.3)	63.9 (54.7-102)	401
	09-10	10.6 (8.75-12.9)	11.9 (10.1-15.4)	24.8 (21.9-29.2)	43.1 (36.0-45.8)	56.1 (44.7-74.3)	420
20 years and older	99-00	8.96 (7.83-10.3)	9.94 (8.71-11.2)	21.0 (18.1-23.8)	37.4 (31.6-45.0)	62.1 (39.4-85.5)	1461
	01-02	9.16 (8.40-9.98)	10.0 (9.22-10.7)	22.9 (20.5-24.1)	47.1 (38.7-54.9)	71.8 (59.6-87.1)	1647
	03-04	8.22 (7.42-9.11)	8.71 (7.78-9.72)	19.4 (17.0-21.2)	39.0 (33.9-44.3)	57.2 (47.9-68.3)	1534
	05-06	6.87 (6.00-7.86)	7.34 (6.41-8.71)	17.1 (14.5-19.7)	34.0 (28.3-43.4)	56.9 (45.9-66.7)	1490
	07-08	6.18 (5.40-7.08)	7.13 (6.12-8.06)	15.5 (13.4-17.6)	30.5 (25.2-37.7)	49.5 (40.3-63.9)	1814
	09-10	5.61 (4.97-6.34)	5.95 (5.17-6.61)	12.7 (10.9-14.8)	25.6 (21.5-29.4)	39.6 (34.2-47.7)	1914
Gender Males	99-00	11.6 (10.1-13.4)	12.7 (10.9-14.4)	25.5 (22.7-29.0)	50.0 (43.1-62.8)	77.8 (69.3-93.4)	1215
	01-02	11.2 (9.78-12.9)	11.5 (10.5-13.3)	26.6 (23.8-31.0)	56.4 (45.7-70.1)	87.5 (63.5-132)	1371
	03-04	10.5 (9.50-11.6)	10.9 (9.50-12.6)	23.3 (21.2-25.6)	47.2 (38.6-57.3)	72.6 (56.6-94.8)	1250
	05-06	9.47 (8.20-10.9)	10.2 (8.78-12.2)	23.3 (19.3-25.9)	51.6 (39.8-61.6)	71.0 (61.6-83.2)	1270
	07-08	7.80 (6.96-8.74)	8.64 (7.49-10.0)	17.6 (15.8-20.4)	33.8 (28.4-41.3)	49.3 (41.5-62.1)	1294
	09-10	6.93 (6.07-7.92)	6.98 (6.21-7.80)	15.6 (13.3-17.6)	33.0 (27.4-37.8)	49.0 (40.4-62.8)	1399
Females	99-00	10.5 (9.17-12.0)	11.6 (10.2-13.8)	25.8 (22.2-29.8)	45.9 (38.7-59.3)	73.9 (60.6-83.4)	1326
	01-02	10.5 (9.40-11.7)	11.1 (9.94-12.9)	27.4 (23.3-31.5)	58.6 (49.2-66.0)	88.0 (73.2-103)	1411
	03-04	9.33 (8.53-10.2)	9.58 (8.71-11.2)	24.0 (21.2-26.1)	48.3 (42.3-52.1)	72.5 (60.8-86.3)	1355
	05-06	7.34 (6.30-8.55)	7.70 (6.55-9.36)	18.4 (15.6-22.2)	39.5 (33.0-46.3)	62.1 (48.0-73.7)	1278
	07-08	6.73 (5.77-7.85)	7.99 (6.41-9.36)	18.8 (15.4-22.5)	40.1 (32.2-50.9)	64.4 (51.1-78.8)	1310
	09-10	6.04 (5.38-6.77)	6.36 (5.18-7.47)	15.3 (12.9-16.9)	29.3 (24.5-36.9)	47.7 (38.0-60.4)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.576, 0.216, 0.072, 0.216, 0.216, and 0.216 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	10.0 (8.69-11.6)	11.3 (9.65-12.2)	23.8 (19.8-26.0)	48.6 (40.0-60.5)	71.1 (58.0-108)	814
	01-02	9.49 (7.75-11.6)	10.7 (7.78-13.3)	21.2 (18.9-27.4)	50.7 (38.2-61.5)	68.2 (50.6-116)	677
	03-04	10.7 (9.52-12.0)	11.2 (9.72-13.2)	23.3 (19.9-25.5)	51.4 (35.0-66.5)	71.9 (62.3-104)	652
	05-06	8.95 (7.12-11.3)	10.2 (8.57-11.9)	20.1 (14.3-31.0)	43.1 (33.9-49.8)	59.8 (43.6-77.3)	637
	07-08	7.87 (6.39-9.68)	9.43 (6.91-11.5)	18.7 (14.1-25.3)	38.0 (30.2-47.5)	60.4 (40.5-73.9)	531
	09-10	7.58 (6.42-8.96)	7.39 (6.33-9.00)	17.1 (14.3-20.3)	33.8 (26.5-43.5)	54.5 (34.4-79.7)	566
Non-Hispanic blacks	99-00	16.6 (14.9-18.4)	16.6 (14.8-18.4)	35.5 (31.7-40.0)	68.2 (57.6-93.4)	99.1 (76.6-174)	603
	01-02	17.1 (15.1-19.4)	17.4 (14.3-20.2)	36.4 (29.9-45.3)	72.6 (62.2-91.3)	103 (91.2-129)	703
	03-04	13.6 (11.8-15.7)	14.4 (11.1-17.7)	31.5 (28.0-35.3)	58.2 (50.4-76.0)	86.2 (71.8-124)	699
	05-06	11.9 (9.03-15.7)	12.7 (10.1-17.1)	26.1 (21.0-35.0)	60.6 (47.2-74.6)	83.2 (74.6-102)	678
	07-08	9.37 (8.28-10.6)	9.72 (8.35-11.7)	21.4 (18.4-24.8)	46.9 (34.3-61.6)	71.3 (63.7-89.6)	597
	09-10	8.98 (7.67-10.5)	9.14 (7.76-10.5)	21.0 (16.4-24.7)	38.9 (30.3-52.6)	67.4 (51.3-80.7)	516
Non-Hispanic whites	99-00	10.3 (9.12-11.6)	11.6 (10.3-13.4)	24.5 (22.0-27.6)	42.3 (36.9-53.4)	73.9 (53.4-83.4)	912
	01-02	10.1 (9.12-11.1)	10.5 (9.65-11.2)	25.6 (23.2-28.4)	55.2 (47.6-65.0)	87.5 (67.1-112)	1216
	03-04	9.25 (8.30-10.3)	9.50 (8.42-11.5)	22.0 (20.0-25.3)	45.9 (38.6-52.1)	65.9 (54.9-87.9)	1088
	05-06	7.67 (6.61-8.90)	8.06 (6.98-10.1)	19.8 (17.1-23.5)	43.4 (32.4-52.5)	65.8 (52.5-76.8)	1038
	07-08	7.10 (6.33-7.97)	8.14 (7.06-9.29)	17.9 (16.5-20.3)	37.7 (31.0-44.2)	57.0 (46.0-68.6)	1077
	09-10	6.07 (5.24-7.03)	6.31 (5.54-7.23)	14.7 (12.4-16.7)	29.5 (23.4-36.9)	44.6 (34.9-64.1)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.576, 0.216, 0.072, 0.216, 0.216, and 0.216 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (2011 – 2014)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.52 (4.17-4.90)	4.40 (4.10-5.00)	10.7 (9.80-12.2)	21.7 (20.2-24.4)	35.9 (29.2-41.7)	2489
	13-14	4.45 (4.07-4.86)	4.50 (4.10-5.00)	11.0 (9.50-12.7)	23.1 (20.5-25.6)	35.1 (28.4-40.2)	2685
Age group							
6-11 years	11-12	8.62 (7.22-10.3)	8.50 (6.60-10.4)	21.6 (15.8-26.2)	50.7 (31.4-71.7)	75.2 (51.3-124)	396
	13-14	8.55 (7.14-10.2)	8.40 (6.50-10.3)	20.2 (15.0-25.2)	36.6 (28.9-56.3)	59.9 (42.6-86.9)	409
12-19 years	11-12	6.62 (5.28-8.30)	7.30 (4.80-10.2)	17.0 (13.3-20.2)	31.5 (24.1-39.2)	42.6 (33.4-65.3)	388
	13-14	6.55 (5.62-7.62)	7.50 (5.60-9.60)	14.7 (11.3-18.7)	25.0 (21.2-35.1)	38.8 (31.3-50.2)	462
20 years and older	11-12	3.98 (3.60-4.39)	4.00 (3.70-4.40)	9.70 (8.10-10.5)	19.2 (17.0-21.0)	28.0 (22.4-37.0)	1705
	13-14	3.91 (3.53-4.34)	4.00 (3.60-4.40)	9.10 (7.80-11.0)	21.2 (19.9-23.2)	30.9 (25.8-37.1)	1814
Gender							
Males	11-12	4.80 (4.25-5.41)	4.80 (4.20-5.40)	11.1 (9.80-12.7)	22.4 (19.9-25.7)	37.0 (28.0-58.3)	1259
	13-14	4.67 (4.20-5.19)	4.80 (4.30-5.40)	10.5 (9.10-12.0)	21.8 (19.9-23.8)	36.0 (28.6-42.7)	1285
Females	11-12	4.27 (3.81-4.77)	4.20 (3.80-4.90)	10.5 (9.50-12.3)	21.6 (19.7-24.4)	33.9 (27.4-42.0)	1230
	13-14	4.25 (3.80-4.75)	4.30 (3.80-4.90)	11.8 (8.80-13.8)	24.7 (20.2-27.4)	35.1 (26.9-43.4)	1400
Race/ethnicity							
Mexican Americans	11-12	5.11 (4.03-6.48)	5.10 (3.90-6.60)	11.3 (7.60-16.9)	20.4 (14.7-28.8)	29.1 (19.9-69.3)	316
	13-14	4.33 (3.82-4.90)	4.20 (3.70-5.20)	9.30 (8.00-11.3)	18.6 (15.5-22.3)	28.4 (20.1-45.3)	438
Non-Hispanic blacks	11-12	7.43 (6.14-8.98)	7.50 (6.40-9.00)	16.4 (13.4-20.1)	33.9 (24.3-48.6)	54.9 (42.7-76.1)	665
	13-14	6.55 (5.72-7.49)	6.50 (5.60-8.10)	17.3 (14.9-19.5)	33.5 (28.4-37.6)	55.0 (37.6-75.3)	609
Non-Hispanic whites	11-12	4.14 (3.84-4.46)	4.10 (3.80-4.40)	10.1 (8.50-11.4)	20.2 (17.9-22.9)	30.4 (24.8-38.2)	813
	13-14	4.34 (3.87-4.86)	4.40 (3.90-5.10)	10.9 (8.70-13.3)	22.9 (20.1-25.9)	35.1 (26.9-42.7)	987
All Hispanics	11-12	4.80 (4.03-5.72)	4.90 (4.00-5.70)	11.3 (8.40-14.8)	22.4 (17.6-29.8)	33.6 (22.4-45.5)	571
	13-14	4.24 (3.88-4.63)	4.40 (3.80-4.80)	9.10 (8.10-10.7)	19.1 (16.3-20.8)	28.6 (21.2-39.5)	690
Asians	11-12	2.99 (2.44-3.67)	2.90 (2.40-3.50)	7.20 (5.20-9.50)	15.1 (11.2-21.5)	27.7 (17.5-45.9)	352
	13-14	2.50 (2.02-3.08)	2.60 (1.90-3.80)	5.60 (4.20-7.60)	14.4 (9.40-17.5)	21.9 (17.0-24.1)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.3 and 0.3, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	10.0 (9.33-10.8)	9.60 (9.22-10.3)	18.1 (16.8-19.6)	36.1 (29.9-42.3)	55.7 (50.1-62.1)	2541
	01-02	10.2 (9.50-10.9)	9.71 (9.12-10.4)	19.1 (17.8-20.9)	39.5 (35.3-42.1)	65.1 (53.6-73.2)	2782
	03-04	9.29 (8.76-9.86)	9.04 (8.07-9.82)	17.7 (16.0-19.0)	33.1 (29.5-37.1)	50.4 (44.9-57.5)	2605
	05-06	8.11 (7.28-9.04)	8.24 (7.37-8.98)	15.3 (13.9-17.4)	30.2 (26.4-35.1)	47.4 (42.7-53.3)	2548
	07-08	7.29 (6.71-7.93)	7.20 (6.57-8.17)	14.3 (13.1-15.4)	28.3 (24.4-31.8)	42.6 (36.3-49.1)	2604
	09-10	6.74 (6.06-7.50)	6.40 (5.63-7.30)	12.4 (11.3-13.8)	24.0 (20.4-26.6)	34.1 (30.5-41.4)	2749
Age group 6-11 years	99-00	28.8 (24.2-34.3)	27.8 (21.7-36.9)	52.9 (40.8-71.4)	75.1 (64.4-102)	102 (71.8-124)	328
	01-02	27.4 (24.8-30.3)	26.9 (24.3-30.4)	48.9 (40.2-57.9)	96.7 (83.3-127)	140 (86.9-219)	393
	03-04	25.8 (21.9-30.3)	23.2 (20.1-29.1)	43.7 (36.1-57.2)	97.8 (61.6-154)	165 (71.8-286)	342
	05-06	23.5 (21.1-26.2)	25.5 (20.5-29.5)	47.1 (35.8-57.8)	77.6 (62.8-94.3)	104 (85.8-130)	356
	07-08	19.0 (16.0-22.5)	20.7 (15.6-27.0)	35.4 (32.3-40.0)	67.2 (51.9-91.5)	118 (74.3-159)	389
	09-10	15.1 (12.7-18.0)	14.6 (12.0-17.2)	29.3 (25.9-37.6)	66.5 (45.3-84.1)	92.2 (67.1-163)	415
12-19 years	99-00	12.4 (11.1-14.0)	12.3 (10.5-14.6)	20.4 (17.5-25.1)	35.8 (27.9-49.9)	50.4 (35.7-59.0)	752
	01-02	12.9 (11.3-14.8)	13.0 (11.3-15.0)	24.4 (21.1-27.8)	48.7 (40.2-61.9)	72.0 (58.1-88.6)	742
	03-04	11.9 (11.1-12.8)	12.2 (11.1-13.1)	21.6 (18.0-25.6)	37.5 (29.3-44.5)	56.0 (39.5-82.6)	729
	05-06	10.6 (9.14-12.2)	10.5 (8.33-13.0)	18.5 (15.9-23.7)	35.8 (28.1-46.0)	48.8 (41.3-65.3)	702
	07-08	9.06 (7.76-10.6)	9.39 (8.12-11.1)	16.7 (13.8-21.0)	32.1 (22.0-45.9)	48.4 (32.3-55.6)	401
	09-10	8.54 (7.36-9.90)	8.73 (7.44-10.8)	14.9 (13.2-17.5)	24.9 (21.6-28.9)	32.5 (25.7-42.7)	420
20 years and older	99-00	8.47 (7.73-9.27)	8.68 (8.01-9.26)	14.5 (13.2-16.8)	24.9 (22.0-29.4)	41.1 (29.7-53.2)	1461
	01-02	8.66 (8.08-9.28)	8.47 (8.00-9.00)	15.6 (14.3-17.1)	30.5 (25.8-34.7)	46.8 (39.0-56.4)	1647
	03-04	7.90 (7.39-8.45)	7.58 (6.98-8.37)	14.2 (13.1-15.4)	26.3 (25.0-28.2)	40.2 (33.7-44.9)	1534
	05-06	6.89 (6.20-7.66)	7.10 (6.60-7.71)	13.1 (12.1-14.2)	22.4 (19.9-25.5)	34.6 (28.9-43.1)	1490
	07-08	6.35 (5.74-7.03)	6.41 (5.65-7.15)	12.3 (11.1-13.6)	21.8 (19.1-25.7)	32.6 (28.7-40.5)	1814
	09-10	5.94 (5.31-6.66)	5.67 (5.03-6.53)	10.8 (9.18-12.5)	19.2 (16.6-23.5)	29.1 (24.2-33.4)	1914
Gender Males	99-00	9.14 (8.51-9.82)	8.96 (8.32-9.39)	17.1 (15.5-18.8)	32.0 (25.5-41.0)	52.9 (34.9-71.8)	1215
	01-02	9.13 (8.18-10.2)	8.55 (7.85-9.53)	17.4 (15.1-19.0)	35.3 (31.5-40.4)	57.8 (43.8-74.7)	1371
	03-04	8.25 (7.60-8.95)	7.99 (7.01-9.03)	15.2 (14.0-17.0)	28.4 (24.6-35.8)	45.3 (37.4-59.8)	1250
	05-06	7.61 (6.65-8.70)	7.57 (6.65-8.91)	14.3 (13.0-16.6)	30.0 (25.5-34.5)	43.7 (36.2-48.2)	1270
	07-08	6.57 (5.91-7.31)	6.66 (5.68-7.46)	12.8 (11.3-14.8)	24.4 (21.2-29.5)	36.3 (30.6-45.5)	1294
	09-10	6.21 (5.56-6.94)	5.88 (5.13-6.74)	11.6 (10.1-12.9)	21.3 (18.8-24.1)	32.2 (27.6-35.6)	1399
Females	99-00	11.0 (9.96-12.1)	10.6 (9.60-11.5)	18.6 (17.3-21.1)	40.6 (33.7-43.6)	57.9 (43.3-84.2)	1326
	01-02	11.3 (10.2-12.4)	10.8 (9.97-11.9)	21.2 (18.6-24.5)	42.1 (35.9-50.0)	69.0 (50.0-83.4)	1411
	03-04	10.4 (9.65-11.2)	9.97 (9.20-10.9)	20.1 (17.8-22.6)	37.4 (31.2-43.4)	52.9 (45.8-65.0)	1355
	05-06	8.63 (7.84-9.51)	8.67 (8.12-9.26)	15.9 (14.8-18.3)	32.0 (26.3-41.4)	52.3 (45.2-62.8)	1278
	07-08	8.07 (7.29-8.93)	8.37 (7.20-9.16)	15.5 (13.9-18.0)	31.5 (27.5-34.2)	48.3 (40.2-54.9)	1310
	09-10	7.29 (6.47-8.21)	6.90 (5.90-8.04)	13.6 (11.9-15.3)	25.6 (21.9-30.4)	38.8 (30.7-47.3)	1350

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (1999 – 2010)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	9.10 (8.20-10.1)	8.60 (7.87-9.53)	17.4 (15.5-19.1)	33.5 (30.2-38.7)	49.1 (40.6-67.5)	814
	01-02	8.95 (7.69-10.4)	8.55 (7.16-10.7)	17.1 (14.1-20.9)	33.6 (26.3-44.4)	51.5 (36.8-86.5)	677
	03-04	9.66 (8.41-11.1)	9.00 (8.25-9.66)	17.3 (15.1-20.0)	38.2 (27.6-46.7)	56.0 (41.1-89.8)	652
	05-06	8.05 (6.69-9.69)	8.38 (7.48-8.91)	16.0 (12.6-20.2)	31.0 (22.4-40.6)	45.7 (31.3-54.2)	637
	07-08	7.68 (6.13-9.62)	8.06 (6.42-10.3)	15.5 (12.5-19.2)	29.1 (21.9-36.9)	42.9 (33.5-51.8)	531
	09-10	7.53 (6.52-8.69)	7.29 (6.30-8.18)	13.3 (11.6-16.3)	32.3 (23.3-43.6)	52.2 (33.0-66.1)	566
Non-Hispanic blacks	99-00	10.7 (9.75-11.7)	9.83 (8.76-10.9)	19.4 (16.2-22.9)	40.5 (28.4-54.7)	62.5 (46.4-71.9)	603
	01-02	12.0 (10.5-13.7)	11.3 (9.84-13.9)	24.1 (19.1-27.4)	43.3 (38.7-50.0)	77.7 (54.4-83.4)	703
	03-04	9.65 (8.46-11.0)	9.81 (8.32-11.2)	17.4 (15.8-20.7)	36.0 (29.6-41.6)	53.8 (42.5-65.2)	699
	05-06	8.38 (6.44-10.9)	8.24 (6.72-10.6)	16.1 (12.8-21.5)	34.1 (25.8-43.9)	52.3 (39.9-62.9)	678
	07-08	7.28 (6.51-8.14)	7.07 (5.97-8.28)	14.7 (12.2-16.0)	25.8 (22.6-31.5)	42.3 (32.6-50.3)	597
	09-10	6.50 (5.49-7.70)	6.50 (5.38-7.45)	11.7 (9.80-14.9)	23.9 (17.0-31.8)	34.4 (25.8-48.9)	516
Non-Hispanic whites	99-00	10.0 (9.16-11.0)	9.66 (9.25-10.7)	18.2 (16.6-19.8)	38.3 (27.9-46.7)	56.1 (48.5-65.0)	912
	01-02	9.97 (9.24-10.8)	9.33 (8.69-10.3)	18.5 (17.1-20.1)	38.2 (33.5-42.1)	64.2 (49.7-78.5)	1216
	03-04	9.14 (8.48-9.84)	8.97 (7.77-9.93)	17.6 (15.6-19.2)	30.2 (28.1-35.2)	47.2 (41.4-57.3)	1088
	05-06	8.08 (7.17-9.10)	8.35 (7.31-9.49)	15.2 (13.7-17.4)	29.9 (25.1-36.5)	47.4 (40.0-57.1)	1038
	07-08	7.42 (6.90-7.97)	7.38 (6.65-8.23)	14.0 (12.9-15.4)	28.3 (24.2-32.3)	44.5 (36.3-52.4)	1077
	09-10	6.83 (6.08-7.67)	6.37 (5.58-7.34)	12.6 (11.1-14.5)	24.0 (19.5-27.6)	33.4 (27.9-44.6)	1206

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.72 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-benzyl phthalate (MBzP) (creatinine corrected) (2011 – 2014)

Metabolite of Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.15 (4.80-5.52)	4.96 (4.62-5.35)	9.49 (8.71-10.5)	17.4 (16.2-19.1)	26.7 (24.3-30.0)	2487
	13-14	4.46 (4.13-4.81)	4.20 (3.78-4.62)	8.40 (7.56-9.32)	17.9 (15.6-19.5)	25.8 (21.3-32.1)	2684
Age group							
6-11 years	11-12	12.5 (10.8-14.5)	11.9 (10.0-14.3)	24.1 (18.5-28.9)	53.2 (35.9-67.4)	81.0 (54.1-97.7)	395
	13-14	10.8 (9.23-12.6)	10.3 (8.79-12.6)	19.9 (16.5-24.0)	39.6 (25.6-74.1)	78.1 (38.3-168)	409
12-19 years	11-12	6.45 (5.81-7.16)	6.23 (5.39-7.54)	11.7 (10.1-13.2)	18.3 (15.2-22.1)	25.5 (20.3-39.9)	388
	13-14	5.31 (4.68-6.03)	5.04 (4.42-5.65)	9.90 (8.22-12.1)	17.9 (13.9-23.3)	30.6 (18.2-35.1)	462
20 years and older	11-12	4.52 (4.18-4.89)	4.46 (4.05-4.76)	8.08 (7.50-8.83)	15.1 (12.9-16.8)	21.6 (18.5-24.5)	1704
	13-14	3.95 (3.59-4.34)	3.78 (3.36-4.18)	7.14 (6.39-8.04)	15.2 (13.2-17.7)	22.3 (18.7-26.5)	1813
Gender							
Males	11-12	4.49 (4.01-5.04)	4.26 (3.91-4.73)	8.46 (7.56-9.10)	15.4 (13.8-18.3)	24.7 (18.3-37.0)	1258
	13-14	3.92 (3.62-4.25)	3.71 (3.33-4.08)	7.16 (6.42-7.87)	15.6 (13.7-17.7)	23.2 (19.4-27.7)	1284
Females	11-12	5.87 (5.43-6.35)	5.65 (5.00-6.43)	10.5 (9.45-12.1)	19.7 (16.4-23.3)	28.7 (24.5-34.8)	1229
	13-14	5.04 (4.60-5.52)	4.62 (4.25-5.17)	9.73 (8.18-11.5)	19.5 (16.2-24.2)	28.8 (23.6-37.7)	1400
Race/ethnicity							
Mexican Americans	11-12	5.76 (4.41-7.51)	5.86 (5.00-7.08)	10.2 (8.61-13.1)	17.8 (12.4-34.6)	28.3 (17.1-50.2)	316
	13-14	4.41 (3.77-5.16)	4.00 (3.25-5.12)	7.57 (6.12-10.7)	16.5 (12.9-24.7)	26.4 (18.6-36.9)	438
Non-Hispanic blacks	11-12	5.78 (4.83-6.92)	5.30 (4.49-6.16)	10.5 (8.68-13.6)	21.1 (17.4-27.5)	35.3 (25.2-53.4)	665
	13-14	4.83 (4.31-5.42)	4.77 (4.26-5.38)	9.71 (8.12-11.6)	19.9 (15.4-25.6)	29.4 (24.8-33.4)	609
Non-Hispanic whites	11-12	5.04 (4.67-5.44)	4.82 (4.44-5.37)	9.11 (8.18-10.7)	16.6 (15.1-18.5)	24.7 (21.4-28.7)	811
	13-14	4.57 (4.11-5.07)	4.24 (3.70-4.76)	8.50 (7.32-10.2)	18.5 (15.6-20.3)	25.8 (21.0-34.4)	987
All Hispanics	11-12	5.38 (4.45-6.51)	5.29 (4.55-6.14)	9.63 (7.95-12.7)	18.4 (13.9-34.6)	35.6 (18.4-49.3)	571
	13-14	4.21 (3.78-4.68)	3.91 (3.36-4.56)	7.57 (6.67-8.64)	15.6 (13.2-18.6)	24.7 (18.4-32.6)	690
Asians	11-12	4.01 (3.49-4.60)	3.96 (3.27-4.72)	7.74 (6.39-9.73)	13.4 (10.5-16.4)	20.5 (14.3-27.7)	352
	13-14	3.16 (2.58-3.87)	3.29 (2.37-4.00)	6.33 (5.00-8.00)	14.7 (10.8-16.4)	17.8 (14.7-30.8)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/BzBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-3-hydroxybutyl phthalate (MHBP) (2013 – 2014)

Metabolite of Di-n-butyl phthalate (DBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.814 (.762-.870)	.800 (.700-.900)	1.60 (1.40-1.70)	2.90 (2.60-3.10)	4.10 (3.70-4.50)	2681
Age group							
6-11 years	13-14	1.16 (.944-1.42)	1.20 (.900-1.50)	2.30 (1.90-2.80)	4.10 (3.10-5.30)	5.30 (4.00-9.40)	409
12-19 years	13-14	1.04 (.967-1.12)	1.10 (.900-1.20)	1.90 (1.70-2.20)	3.40 (2.50-3.80)	4.10 (3.70-4.60)	461
20 years and older	13-14	.756 (.704-.812)	.700 (.600-.800)	1.40 (1.30-1.60)	2.60 (2.40-3.00)	3.90 (3.30-4.40)	1811
Gender							
Males	13-14	.805 (.728-.891)	.800 (.700-.900)	1.60 (1.30-1.70)	2.60 (2.20-3.30)	4.10 (3.00-5.10)	1284
Females	13-14	.823 (.757-.895)	.800 (.700-.900)	1.70 (1.40-1.90)	3.10 (2.60-3.40)	4.00 (3.50-4.40)	1397
Race/ethnicity							
Mexican Americans	13-14	.768 (.691-.854)	.700 (.600-.800)	1.40 (1.10-1.70)	2.40 (2.10-3.20)	4.10 (3.10-4.90)	438
Non-Hispanic blacks	13-14	.942 (.848-1.05)	1.00 (.800-1.10)	1.80 (1.60-1.90)	3.00 (2.60-3.80)	4.20 (3.50-5.30)	608
Non-Hispanic whites	13-14	.806 (.729-.892)	.800 (.600-.900)	1.60 (1.30-1.80)	3.00 (2.60-3.20)	4.10 (3.40-4.80)	986
All Hispanics	13-14	.794 (.734-.859)	.700 (.700-.800)	1.60 (1.30-1.70)	2.80 (2.40-3.20)	4.10 (3.50-5.00)	690
Asians	13-14	.676 (.585-.781)	.600 (.500-.800)	1.30 (1.10-1.60)	2.20 (1.90-2.90)	3.50 (2.30-4.00)	287

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.4.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-3-hydroxybutyl phthalate (MHBP) (creatinine corrected) (2013 – 2014)

Metabolite of Di-n-butyl phthalate (DBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.817 (.742-.900)	.814 (.725-.903)	1.33 (1.22-1.46)	2.24 (2.05-2.48)	3.30 (2.80-3.93)	2680
Age group							
6-11 years	13-14	1.46 (1.23-1.74)	1.41 (1.19-1.71)	2.45 (2.00-3.11)	4.27 (3.11-5.91)	6.40 (4.09-9.38)	409
12-19 years	13-14	.844 (.733-.971)	.823 (.718-.959)	1.32 (1.11-1.52)	2.05 (1.59-3.10)	3.21 (1.97-4.80)	461
20 years and older	13-14	.763 (.688-.845)	.763 (.683-.872)	1.25 (1.14-1.37)	2.15 (1.83-2.33)	2.96 (2.42-3.42)	1810
Gender							
Males	13-14	.677 (.606-.756)	.660 (.596-.723)	1.08 (.952-1.30)	1.88 (1.58-2.24)	3.10 (2.19-4.02)	1283
Females	13-14	.978 (.879-1.09)	1.00 (.896-1.09)	1.55 (1.39-1.72)	2.46 (2.24-2.86)	3.53 (2.96-4.21)	1397
Race/ethnicity							
Mexican Americans	13-14	.782 (.700-.875)	.753 (.683-.875)	1.42 (1.17-1.70)	2.26 (2.00-2.61)	3.10 (2.61-3.62)	438
Non-Hispanic blacks	13-14	.697 (.655-.741)	.694 (.650-.737)	1.21 (1.09-1.29)	1.84 (1.55-2.11)	2.46 (2.05-3.19)	608
Non-Hispanic whites	13-14	.849 (.737-.977)	.864 (.734-.994)	1.33 (1.21-1.56)	2.30 (2.04-2.80)	3.41 (2.64-4.44)	986
All Hispanics	13-14	.788 (.715-.868)	.757 (.690-.863)	1.43 (1.25-1.58)	2.26 (2.00-2.56)	3.21 (2.74-3.51)	690
Asians	13-14	.866 (.764-.981)	.854 (.700-.986)	1.56 (1.27-1.73)	2.26 (2.03-2.90)	3.14 (2.53-4.02)	286

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.*

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.6 (22.1-27.4)	26.0 (23.6-29.2)	51.6 (44.5-60.3)	98.6 (90.2-114)	150 (121-169)	2541
	01-02	18.9 (17.4-20.6)	20.4 (19.2-21.8)	40.4 (36.5-44.2)	73.6 (65.3-85.6)	108 (94.1-122)	2782
	03-04	21.1 (19.8-22.5)	23.2 (21.2-24.8)	42.7 (38.5-47.2)	80.7 (70.2-93.9)	122 (104-137)	2605
	05-06	19.6 (18.2-21.3)	20.6 (18.6-23.0)	40.4 (36.4-44.9)	71.5 (66.5-79.5)	107 (96.3-124)	2548
	07-08	18.9 (17.2-20.7)	20.0 (18.1-21.9)	39.1 (34.5-43.4)	72.4 (64.5-77.7)	110 (94.5-120)	2604
	09-10	14.6 (13.2-16.2)	15.9 (14.3-17.3)	30.5 (27.2-33.3)	54.4 (49.7-59.1)	75.9 (67.5-86.8)	2749
Age group 6-11 years	99-00	41.4 (35.6-48.0)	40.0 (36.2-49.2)	75.5 (59.1-92.8)	124 (98.4-159)	166 (127-279)	328
	01-02	31.1 (26.6-36.5)	32.4 (25.6-37.1)	62.1 (51.3-76.9)	107 (84.3-136)	159 (110-290)	393
	03-04	36.3 (30.7-42.9)	36.7 (28.5-47.5)	71.3 (56.9-87.2)	137 (107-162)	191 (150-243)	342
	05-06	30.5 (27.5-33.8)	32.3 (27.8-35.0)	57.4 (46.8-65.4)	93.4 (75.6-130)	136 (108-181)	356
	07-08	26.9 (22.5-32.1)	28.7 (21.3-38.0)	53.6 (45.6-63.6)	85.6 (71.4-102)	119 (91.6-150)	389
	09-10	21.7 (19.0-24.8)	23.3 (20.8-26.2)	44.9 (39.1-49.7)	83.8 (59.6-121)	124 (92.3-173)	415
12-19 years	99-00	36.0 (30.8-42.1)	36.3 (30.6-44.9)	68.6 (55.9-79.7)	119 (90.2-159)	165 (121-227)	752
	01-02	25.1 (21.6-29.2)	26.7 (22.0-32.7)	52.6 (48.4-60.4)	92.4 (72.7-121)	148 (106-185)	742
	03-04	26.7 (24.1-29.5)	28.2 (25.2-33.1)	52.0 (45.3-60.9)	97.5 (74.7-116)	134 (110-158)	729
	05-06	27.5 (24.3-31.3)	29.0 (23.7-36.6)	57.2 (48.7-64.9)	88.6 (75.1-105)	125 (96.2-154)	702
	07-08	26.2 (22.5-30.6)	27.3 (22.1-32.8)	51.7 (46.2-63.8)	111 (77.7-132)	149 (103-188)	401
	09-10	18.9 (16.1-22.2)	22.3 (19.4-24.4)	37.2 (31.3-43.4)	61.7 (52.8-73.2)	81.4 (68.9-86.3)	420
20 years and older	99-00	21.6 (19.0-24.5)	23.1 (19.7-26.1)	46.3 (36.9-53.6)	95.0 (78.7-111)	143 (117-161)	1461
	01-02	17.0 (15.4-18.8)	19.1 (17.1-20.4)	35.1 (31.6-40.2)	64.8 (57.3-79.7)	95.4 (84.6-113)	1647
	03-04	19.0 (17.7-20.5)	20.7 (18.9-22.9)	38.4 (35.7-42.7)	74.7 (64.1-82.6)	108 (90.7-127)	1534
	05-06	17.7 (16.0-19.6)	18.4 (16.6-20.6)	36.7 (32.5-41.4)	65.1 (55.4-74.3)	101 (84.3-121)	1490
	07-08	17.2 (15.6-19.1)	18.6 (16.7-20.3)	34.5 (31.5-39.1)	63.8 (56.4-72.5)	98.3 (83.0-115)	1814
	09-10	13.5 (12.0-15.1)	14.5 (13.0-16.0)	28.1 (24.1-32.0)	50.0 (44.1-56.1)	68.9 (60.6-77.3)	1914
Gender Males	99-00	22.0 (20.1-24.1)	23.2 (20.4-26.3)	43.1 (36.6-49.5)	84.4 (71.3-96.2)	116 (97.8-132)	1215
	01-02	17.7 (16.0-19.6)	19.3 (17.3-21.0)	34.5 (30.3-40.6)	62.1 (54.1-75.5)	95.2 (75.5-117)	1371
	03-04	20.0 (18.1-22.0)	21.1 (19.0-24.0)	39.4 (35.5-43.4)	65.5 (59.0-73.0)	95.9 (79.8-111)	1250
	05-06	19.8 (18.4-21.4)	20.7 (19.0-23.0)	38.5 (34.6-42.0)	63.8 (56.8-72.0)	96.2 (79.0-113)	1270
	07-08	18.4 (16.8-20.3)	19.0 (17.3-21.3)	36.0 (32.5-40.4)	60.9 (52.8-68.8)	88.3 (72.6-110)	1294
	09-10	14.5 (13.0-16.3)	15.4 (13.7-16.9)	28.4 (25.9-31.2)	51.7 (44.3-54.8)	68.9 (58.9-78.0)	1399
Females	99-00	27.3 (23.6-31.5)	30.0 (25.9-33.3)	59.7 (51.6-69.6)	120 (98.3-145)	167 (143-223)	1326
	01-02	20.2 (18.2-22.4)	21.7 (19.7-24.3)	46.7 (43.1-51.1)	85.0 (72.7-92.5)	121 (106-136)	1411
	03-04	22.2 (21.2-23.3)	24.4 (23.4-25.8)	47.3 (42.7-53.0)	95.9 (79.9-114)	137 (122-156)	1355
	05-06	19.5 (17.2-22.0)	20.4 (17.1-24.7)	42.3 (36.7-52.0)	83.2 (71.0-90.2)	124 (101-137)	1278
	07-08	19.3 (17.2-21.7)	20.8 (18.1-23.2)	42.5 (35.6-50.6)	83.7 (68.6-109)	132 (109-151)	1310
	09-10	14.7 (13.1-16.5)	16.4 (13.9-19.3)	32.7 (29.9-37.1)	57.7 (52.7-63.9)	86.2 (68.9-113)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.9, 1.1, 0.4, 0.6, 0.6, and 0.4 respectively.

*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-n-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.*

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	23.4 (21.8-25.1)	26.3 (23.9-28.1)	48.1 (41.2-56.7)	92.2 (78.9-101)	117 (104-131)	814
	01-02	20.1 (16.6-24.5)	23.1 (18.0-26.5)	42.1 (34.0-51.5)	77.1 (62.9-92.5)	112 (84.6-143)	677
	03-04	24.1 (19.8-29.5)	26.9 (20.2-32.0)	47.4 (38.0-58.5)	85.6 (61.7-117)	127 (99.8-165)	652
	05-06	22.4 (18.6-27.0)	23.5 (19.0-29.0)	45.4 (37.1-55.4)	90.2 (71.1-119)	132 (106-174)	637
	07-08	22.2 (18.5-26.7)	22.4 (17.8-27.1)	43.8 (36.2-50.4)	76.4 (59.8-106)	145 (85.6-223)	531
	09-10	17.2 (15.3-19.4)	17.3 (14.3-20.9)	34.3 (31.4-38.8)	56.1 (47.7-67.9)	80.0 (65.1-107)	566
Non-Hispanic blacks	99-00	37.0 (31.9-42.9)	38.7 (33.4-44.5)	78.2 (58.7-91.8)	118 (108-143)	167 (143-197)	603
	01-02	29.6 (26.6-33.1)	31.5 (28.7-34.1)	58.3 (51.2-63.4)	93.2 (79.5-121)	138 (110-184)	703
	03-04	30.1 (28.4-31.9)	31.5 (29.7-34.1)	64.1 (58.3-67.1)	106 (94.8-119)	144 (115-168)	699
	05-06	27.1 (23.1-31.8)	28.5 (25.0-31.2)	53.1 (39.9-65.8)	105 (77.3-135)	143 (118-183)	678
	07-08	25.0 (21.9-28.4)	25.8 (22.0-30.4)	52.4 (43.9-59.5)	91.2 (75.6-106)	114 (96.8-148)	597
	09-10	21.9 (19.2-25.0)	23.2 (20.0-26.3)	42.4 (37.1-47.5)	69.1 (59.4-84.2)	103 (74.8-134)	516
Non-Hispanic whites	99-00	21.8 (19.3-24.6)	23.2 (19.5-27.5)	46.3 (37.5-53.3)	90.2 (74.7-106)	142 (111-161)	912
	01-02	17.6 (16.0-19.3)	19.2 (17.0-21.0)	36.6 (32.4-42.6)	69.2 (59.2-87.6)	107 (89.8-123)	1216
	03-04	18.9 (17.6-20.3)	20.7 (18.9-22.8)	38.4 (35.5-42.7)	71.3 (60.1-80.0)	101 (90.7-124)	1088
	05-06	17.8 (16.2-19.5)	18.6 (16.9-20.7)	37.8 (33.1-42.1)	65.4 (55.4-73.9)	95.9 (79.5-113)	1038
	07-08	17.8 (16.2-19.5)	18.9 (17.2-20.9)	36.7 (32.3-41.4)	68.0 (58.9-77.2)	110 (86.5-120)	1077
	09-10	13.0 (11.6-14.5)	14.1 (12.7-15.8)	26.6 (23.4-31.0)	48.8 (42.2-54.3)	67.5 (57.6-76.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.9, 1.1, 0.4, 0.6, 0.6, and 0.4 respectively.

*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-n-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (2011 – 2014)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	7.61 (6.64-8.72)	9.20 (8.10-10.1)	20.0 (17.8-22.1)	35.5 (31.3-41.8)	55.0 (44.3-68.5)	2489
	13-14	9.08 (8.53-9.66)	10.2 (9.40-11.2)	19.9 (18.1-21.0)	35.1 (32.4-37.9)	49.2 (45.7-54.0)	2685
Age group							
6-11 years	11-12	11.1 (8.73-14.2)	14.9 (10.8-17.1)	25.7 (23.2-32.1)	58.6 (39.6-71.4)	97.0 (59.3-163)	396
	13-14	12.0 (10.1-14.2)	13.1 (10.5-15.3)	26.9 (22.1-32.2)	45.3 (36.5-51.7)	55.5 (46.7-63.0)	409
12-19 years	11-12	9.69 (7.91-11.9)	12.2 (10.0-14.7)	24.7 (21.0-30.7)	44.2 (36.1-56.9)	60.7 (51.3-83.4)	388
	13-14	12.1 (11.2-13.1)	13.6 (12.4-14.8)	24.5 (20.6-27.7)	45.7 (30.5-57.1)	61.0 (46.0-64.9)	462
20 years and older	11-12	7.04 (6.04-8.21)	8.20 (7.20-9.60)	18.2 (15.7-20.7)	31.8 (27.3-38.3)	46.4 (37.7-64.3)	1705
	13-14	8.44 (7.84-9.10)	9.40 (8.70-10.2)	18.0 (17.0-19.7)	32.4 (29.0-35.1)	46.6 (38.9-52.3)	1814
Gender							
Males	11-12	8.14 (7.03-9.43)	9.20 (8.50-10.1)	20.1 (17.6-23.2)	34.0 (29.7-43.1)	56.9 (38.5-75.1)	1259
	13-14	9.43 (8.56-10.4)	10.3 (9.30-11.4)	19.7 (17.5-21.5)	32.4 (28.8-36.9)	46.8 (38.9-53.0)	1285
Females	11-12	7.14 (6.05-8.41)	9.00 (7.10-10.6)	19.7 (17.5-21.9)	36.1 (30.3-43.1)	51.8 (44.3-68.0)	1230
	13-14	8.76 (7.89-9.73)	10.1 (9.10-11.6)	20.1 (17.2-22.5)	36.9 (32.9-42.7)	51.0 (44.7-59.1)	1400
Race/ethnicity							
Mexican Americans	11-12	8.96 (7.58-10.6)	10.1 (7.70-13.1)	20.6 (15.2-26.4)	35.8 (29.1-45.4)	50.3 (38.9-83.4)	316
	13-14	9.81 (8.41-11.4)	10.4 (8.40-13.6)	18.7 (15.2-23.9)	36.2 (23.6-53.5)	54.0 (43.6-64.9)	438
Non-Hispanic blacks	11-12	13.2 (11.2-15.6)	15.3 (13.3-17.9)	29.7 (26.4-32.8)	53.1 (43.6-67.3)	76.4 (60.3-100)	665
	13-14	11.8 (10.4-13.4)	13.1 (11.4-15.1)	26.0 (23.7-27.9)	43.8 (38.3-49.2)	58.9 (48.8-68.8)	609
Non-Hispanic whites	11-12	6.47 (5.66-7.39)	7.60 (6.70-8.50)	17.1 (15.2-18.4)	30.3 (25.9-33.4)	43.1 (32.3-59.3)	813
	13-14	8.40 (7.76-9.09)	9.40 (8.20-11.2)	18.0 (16.5-21.0)	32.4 (28.1-36.7)	46.8 (37.9-53.1)	987
All Hispanics	11-12	9.78 (8.15-11.7)	11.0 (8.80-14.4)	23.3 (20.0-27.0)	38.9 (31.8-50.6)	60.5 (45.4-93.3)	571
	13-14	9.91 (8.98-10.9)	10.5 (9.40-11.8)	19.3 (16.1-23.6)	38.2 (30.3-49.7)	59.5 (48.8-75.0)	690
Asians	11-12	6.77 (5.05-9.06)	8.20 (5.80-10.8)	18.9 (13.5-29.1)	40.5 (29.1-58.6)	64.3 (45.9-104)	352
	13-14	8.29 (6.86-10.0)	9.40 (6.60-12.3)	18.3 (14.0-22.2)	31.5 (25.2-35.7)	41.3 (34.2-51.6)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.4 and 0.4, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (creatinine corrected) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.*

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	22.4 (20.6-24.4)	21.9 (19.8-24.3)	38.9 (35.0-41.8)	68.3 (60.3-78.3)	97.7 (81.4-131)	2541
	01-02	17.8 (16.7-19.0)	17.4 (16.3-18.4)	30.3 (28.1-32.3)	52.4 (47.4-61.0)	81.3 (71.0-92.5)	2782
	03-04	19.8 (18.5-21.2)	19.3 (17.7-20.8)	33.9 (30.9-38.5)	59.0 (52.9-68.1)	91.6 (74.1-115)	2605
	05-06	19.2 (18.0-20.4)	18.3 (16.8-19.8)	30.8 (29.0-33.0)	50.8 (47.8-56.6)	77.8 (67.2-94.8)	2548
	07-08	19.0 (17.7-20.5)	18.8 (17.2-20.0)	31.4 (28.7-34.1)	52.0 (46.4-59.5)	77.1 (64.2-88.6)	2604
	09-10	15.3 (14.0-16.6)	14.4 (13.4-15.8)	23.6 (21.7-25.2)	38.7 (34.1-45.8)	57.4 (49.8-69.9)	2749
Age group 6-11 years	99-00	41.9 (37.4-47.1)	39.1 (34.3-49.0)	65.9 (56.7-80.0)	108 (71.2-179)	159 (102-263)	328
	01-02	35.4 (31.7-39.6)	35.1 (29.3-38.9)	55.4 (50.1-62.3)	84.0 (69.0-113)	147 (93.8-235)	393
	03-04	38.4 (33.8-43.6)	39.0 (34.7-42.6)	59.3 (52.9-68.1)	104 (83.6-119)	137 (108-198)	342
	05-06	33.6 (30.8-36.6)	33.9 (30.6-37.4)	50.6 (45.0-58.3)	78.5 (66.8-111)	128 (73.4-172)	356
	07-08	33.1 (27.6-39.7)	34.2 (27.5-41.3)	51.9 (42.6-63.8)	81.8 (61.3-101)	109 (83.1-159)	389
	09-10	28.3 (25.0-32.0)	26.7 (24.0-31.1)	47.8 (39.4-53.9)	78.6 (59.8-101)	130 (98.9-156)	415
12-19 years	99-00	24.3 (21.2-27.8)	23.7 (20.6-27.4)	37.6 (31.6-43.8)	63.3 (52.4-76.4)	88.1 (61.5-142)	752
	01-02	19.4 (17.3-21.7)	20.3 (17.5-22.3)	34.9 (30.5-37.9)	53.4 (45.2-73.9)	89.7 (60.3-106)	742
	03-04	20.0 (18.7-21.3)	19.8 (18.2-21.7)	30.7 (27.9-34.8)	52.7 (43.4-65.4)	74.4 (56.0-90.9)	729
	05-06	20.5 (19.0-22.2)	21.2 (18.8-22.9)	31.9 (29.6-33.8)	49.3 (42.1-56.4)	70.2 (52.0-108)	702
	07-08	20.4 (18.4-22.6)	21.9 (18.7-25.7)	33.8 (30.0-38.5)	50.7 (42.4-64.0)	72.4 (50.7-84.5)	401
	09-10	15.2 (13.8-16.8)	15.3 (13.8-18.4)	22.5 (21.1-24.8)	31.8 (28.2-34.6)	42.3 (33.8-51.2)	420
20 years and older	99-00	20.4 (18.6-22.4)	19.5 (18.1-21.4)	34.9 (30.3-40.0)	62.4 (53.4-72.1)	91.0 (70.4-135)	1461
	01-02	16.1 (15.0-17.3)	15.5 (14.2-16.5)	26.3 (24.2-28.6)	44.2 (38.7-51.1)	71.6 (61.2-85.6)	1647
	03-04	18.3 (17.0-19.6)	17.7 (16.6-19.2)	31.0 (27.4-34.0)	53.3 (46.5-64.2)	83.8 (65.3-114)	1534
	05-06	17.8 (16.4-19.2)	16.8 (15.6-18.4)	28.1 (25.3-30.9)	46.1 (41.5-53.0)	74.3 (55.4-94.8)	1490
	07-08	17.7 (16.3-19.2)	17.2 (15.7-18.8)	28.2 (25.8-30.5)	46.7 (42.0-53.3)	71.8 (57.8-89.5)	1814
	09-10	14.3 (13.0-15.7)	13.5 (12.5-14.8)	21.6 (20.0-23.8)	34.5 (30.1-40.2)	50.9 (42.2-67.7)	1914
Gender Males	99-00	17.3 (16.1-18.6)	17.0 (15.5-18.8)	28.6 (25.8-32.1)	49.3 (42.6-53.5)	64.7 (57.3-71.5)	1215
	01-02	14.4 (13.5-15.4)	13.7 (12.9-14.9)	22.9 (20.8-24.6)	39.9 (35.6-44.0)	60.0 (50.5-76.2)	1371
	03-04	15.7 (14.5-16.9)	14.8 (13.6-16.0)	25.4 (23.6-28.1)	41.4 (37.0-47.5)	59.4 (50.3-81.5)	1250
	05-06	15.9 (15.1-16.8)	15.4 (14.2-16.4)	24.9 (23.1-27.0)	38.6 (35.7-42.3)	51.2 (46.1-63.5)	1270
	07-08	15.5 (14.4-16.8)	14.7 (13.4-16.3)	24.9 (22.6-27.6)	40.8 (35.2-44.9)	55.2 (46.1-65.2)	1294
	09-10	13.0 (12.0-14.2)	12.8 (11.7-13.6)	19.9 (18.1-21.2)	30.3 (28.4-33.2)	45.3 (39.7-53.8)	1399
Females	99-00	28.6 (25.3-32.3)	28.8 (25.5-30.5)	50.6 (41.9-56.3)	84.3 (69.2-106)	134 (93.6-155)	1326
	01-02	21.7 (19.6-23.9)	21.6 (19.7-23.6)	35.8 (33.0-38.7)	64.9 (58.9-70.2)	91.5 (81.4-103)	1411
	03-04	24.8 (22.9-26.8)	24.1 (21.6-26.8)	42.9 (39.2-48.9)	74.9 (64.2-86.6)	117 (83.6-139)	1355
	05-06	22.9 (20.9-25.1)	21.5 (19.4-24.6)	37.1 (33.3-41.9)	67.2 (56.8-74.4)	99.6 (77.8-128)	1278
	07-08	23.1 (21.0-25.5)	22.8 (20.9-25.2)	38.0 (32.7-43.1)	62.7 (52.1-78.5)	89.8 (76.2-126)	1310
	09-10	17.8 (16.0-19.7)	17.6 (15.1-19.4)	27.1 (24.4-30.3)	47.8 (37.9-53.8)	70.6 (53.8-91.5)	1350

*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-n-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (creatinine corrected) (1999 – 2010)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.*

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	21.2 (19.3-23.3)	20.0 (18.2-22.9)	40.1 (32.6-44.3)	63.6 (57.5-70.1)	82.9 (73.9-100)	814
	01-02	19.0 (16.2-22.2)	19.2 (16.3-21.9)	33.7 (28.3-39.6)	61.0 (43.9-84.0)	86.7 (60.6-128)	677
	03-04	21.8 (17.7-26.8)	20.4 (17.4-24.0)	37.6 (29.6-50.1)	75.3 (55.6-92.0)	96.3 (76.4-164)	652
	05-06	20.1 (17.8-22.8)	19.1 (16.4-23.0)	34.3 (29.2-42.6)	64.8 (54.6-75.9)	98.1 (70.2-154)	637
	07-08	21.7 (17.7-26.5)	20.9 (16.4-27.1)	36.9 (29.1-46.7)	59.5 (47.1-88.9)	102 (63.4-161)	531
	09-10	17.1 (15.5-18.8)	15.0 (14.0-16.3)	27.4 (23.6-31.6)	51.0 (42.9-69.6)	88.1 (59.8-100)	566
Non-Hispanic blacks	99-00	23.9 (21.3-26.8)	25.0 (20.7-28.1)	42.2 (35.9-49.6)	70.0 (61.1-83.9)	96.2 (83.9-105)	603
	01-02	20.8 (18.8-23.1)	20.2 (19.2-22.8)	34.5 (30.9-36.8)	62.8 (50.6-74.6)	85.6 (72.1-99.0)	703
	03-04	21.4 (19.5-23.4)	22.0 (19.6-24.8)	35.4 (31.6-42.7)	65.7 (54.0-75.3)	94.0 (71.1-128)	699
	05-06	19.1 (16.4-22.1)	18.5 (16.2-20.7)	30.1 (24.9-39.5)	54.6 (42.0-81.3)	84.7 (51.3-125)	678
	07-08	19.4 (17.3-21.7)	19.2 (16.8-22.0)	30.5 (27.0-36.5)	50.7 (42.8-60.4)	78.3 (59.3-125)	597
	09-10	15.9 (14.5-17.4)	15.3 (13.5-18.6)	24.9 (22.6-27.2)	37.6 (33.8-45.4)	51.2 (44.7-70.6)	516
Non-Hispanic whites	99-00	21.3 (19.1-23.8)	20.5 (18.6-23.2)	36.4 (31.5-41.0)	67.1 (56.7-78.4)	97.7 (73.5-142)	912
	01-02	17.4 (16.2-18.6)	16.5 (15.3-17.8)	29.0 (26.6-32.2)	51.1 (46.0-60.0)	81.4 (68.1-99.0)	1216
	03-04	18.6 (17.3-20.1)	17.9 (16.7-19.8)	31.6 (27.7-37.8)	53.3 (48.2-61.5)	81.5 (64.2-108)	1088
	05-06	18.7 (17.5-19.9)	17.9 (16.3-19.5)	29.7 (27.5-32.0)	48.7 (42.2-55.4)	74.3 (58.3-94.5)	1038
	07-08	18.5 (17.3-19.9)	18.1 (16.6-19.6)	30.4 (27.3-33.3)	50.9 (43.6-61.0)	75.8 (62.6-88.0)	1077
	09-10	14.6 (13.5-15.7)	13.9 (13.2-15.0)	22.1 (20.3-24.2)	35.3 (30.9-40.6)	52.5 (45.8-63.0)	1206

*In the 1999-2000 survey period, concentrations of mono-isobutyl and mono-n-butyl phthalates were measured together and expressed as the combined value, monobutyl phthalate (MBP)

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-butyl phthalate (MnBP) (creatinine corrected) (2011 – 2014)

Metabolite of Dibutyl phthalate (DBP) and Benzylbutyl phthalate (BzBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	8.66 (7.79-9.62)	9.04 (8.30-9.92)	15.8 (15.0-17.3)	27.9 (24.2-30.9)	41.2 (33.0-51.8)	2487
	13-14	9.10 (8.56-9.69)	9.17 (8.62-9.63)	14.9 (14.1-15.5)	23.8 (21.8-26.3)	34.4 (30.5-39.5)	2684
Age group							
6-11 years	11-12	15.9 (13.0-19.5)	17.7 (15.0-20.6)	29.8 (24.8-34.4)	51.2 (38.4-66.4)	73.3 (47.3-114)	395
	13-14	15.1 (13.4-17.1)	14.8 (13.0-17.8)	26.3 (22.2-28.8)	42.2 (31.5-53.2)	56.2 (43.1-77.1)	409
12-19 years	11-12	9.44 (8.71-10.2)	10.5 (8.61-12.7)	15.7 (14.9-17.8)	28.1 (22.0-30.0)	37.0 (29.2-46.7)	388
	13-14	9.82 (8.79-11.0)	9.93 (8.95-10.3)	15.0 (13.8-16.8)	22.2 (18.3-30.6)	34.1 (22.2-60.4)	462
20 years and older	11-12	8.00 (7.09-9.01)	8.32 (7.64-9.12)	14.6 (13.0-16.0)	23.4 (21.4-27.9)	36.2 (29.4-47.3)	1704
	13-14	8.52 (8.01-9.05)	8.62 (8.06-9.13)	13.9 (13.3-14.9)	22.2 (20.3-23.8)	30.2 (26.4-34.5)	1813
Gender							
Males	11-12	7.61 (6.65-8.69)	8.07 (7.54-8.85)	13.7 (11.9-15.5)	22.7 (19.3-26.3)	34.6 (24.1-53.0)	1258
	13-14	7.92 (7.26-8.65)	7.67 (6.97-8.47)	13.0 (11.6-14.2)	20.3 (18.3-22.4)	28.8 (22.9-35.8)	1284
Females	11-12	9.81 (8.86-10.9)	10.3 (9.18-11.5)	18.1 (16.8-19.7)	31.8 (28.1-34.6)	44.8 (38.4-54.6)	1229
	13-14	10.4 (9.80-11.0)	10.5 (9.67-11.3)	16.3 (15.2-17.7)	26.4 (24.1-30.1)	40.0 (33.4-45.3)	1400
Race/ethnicity							
Mexican Americans	11-12	10.1 (8.62-11.8)	10.7 (8.62-12.9)	17.6 (14.2-19.7)	32.6 (24.7-46.4)	55.9 (35.1-76.6)	316
	13-14	10.0 (8.98-11.1)	10.0 (8.38-11.3)	16.8 (14.5-19.7)	27.6 (22.4-36.7)	40.3 (30.3-45.7)	438
Non-Hispanic blacks	11-12	10.3 (8.80-12.0)	11.1 (9.27-12.6)	19.1 (17.0-21.5)	31.7 (25.7-37.0)	43.5 (34.0-56.0)	665
	13-14	8.71 (8.05-9.42)	8.96 (8.09-9.57)	14.7 (13.7-15.8)	24.2 (20.2-28.4)	32.0 (26.6-39.6)	609
Non-Hispanic whites	11-12	7.85 (6.92-8.91)	8.13 (7.43-8.99)	14.5 (13.0-15.9)	22.9 (21.4-27.9)	34.6 (27.9-46.4)	811
	13-14	8.84 (8.10-9.65)	8.87 (8.01-9.58)	14.3 (13.4-15.3)	22.4 (18.7-26.4)	31.4 (25.4-44.5)	987
All Hispanics	11-12	11.0 (9.71-12.3)	11.2 (10.3-12.5)	19.3 (15.8-24.9)	36.1 (28.8-47.4)	55.6 (42.1-65.6)	571
	13-14	9.84 (8.97-10.8)	10.0 (8.65-11.3)	17.1 (14.9-18.8)	26.6 (23.1-33.4)	40.0 (30.8-42.7)	690
Asians	11-12	9.07 (7.35-11.2)	9.84 (7.57-11.9)	19.0 (14.0-24.5)	35.6 (25.9-45.0)	46.2 (41.5-73.3)	352
	13-14	10.6 (9.16-12.2)	10.0 (8.68-12.9)	17.3 (15.0-20.8)	31.3 (24.4-38.8)	45.3 (34.5-56.5)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.71 (2.49-2.94)	2.70 (2.40-3.00)	5.70 (5.30-6.10)	12.0 (11.4-12.7)	17.9 (16.3-19.8)	2782
	03-04	3.80 (3.40-4.25)	4.20 (3.70-4.80)	8.40 (7.40-9.50)	15.0 (13.1-17.3)	21.3 (18.6-26.0)	2605
	05-06	5.20 (4.64-5.83)	5.80 (5.40-6.60)	11.9 (10.6-13.3)	21.3 (18.7-23.7)	31.6 (27.1-37.2)	2548
	07-08	7.15 (6.59-7.77)	8.00 (7.50-8.60)	15.3 (13.9-16.9)	27.2 (24.6-30.4)	39.1 (35.4-43.8)	2604
	09-10	7.64 (6.88-8.49)	8.30 (7.24-9.27)	15.8 (14.5-17.4)	27.6 (24.7-31.7)	41.3 (35.6-47.5)	2749
Age group 6-11 years	01-02	4.22 (3.28-5.43)	4.40 (3.20-6.20)	10.7 (7.30-13.4)	18.6 (14.2-22.0)	23.4 (20.4-27.8)	393
	03-04	6.56 (5.24-8.22)	7.00 (5.10-9.10)	12.8 (9.40-17.7)	24.3 (19.6-34.5)	40.6 (29.3-48.5)	342
	05-06	8.53 (7.67-9.48)	9.00 (8.20-10.3)	15.8 (13.7-19.2)	33.2 (27.5-38.4)	49.1 (33.2-54.4)	356
	07-08	10.7 (8.94-12.8)	11.4 (8.90-13.2)	21.1 (16.6-27.2)	35.9 (30.2-44.7)	55.4 (36.4-75.5)	389
	09-10	10.2 (9.10-11.4)	10.9 (9.45-12.2)	20.8 (18.8-23.6)	35.7 (28.8-46.9)	55.4 (41.2-75.4)	415
12-19 years	01-02	3.48 (2.90-4.17)	3.80 (2.90-4.40)	7.40 (6.00-9.00)	14.5 (11.7-18.6)	22.3 (16.2-33.4)	742
	03-04	4.55 (3.73-5.55)	5.60 (4.50-6.30)	10.1 (8.00-11.4)	17.1 (13.3-20.9)	22.7 (18.5-29.1)	729
	05-06	7.46 (6.53-8.51)	7.90 (6.90-9.80)	16.2 (13.6-19.3)	29.2 (23.6-31.3)	34.1 (30.1-49.9)	702
	07-08	10.2 (8.53-12.3)	10.5 (8.40-12.9)	22.3 (17.0-26.9)	41.6 (32.9-48.1)	56.2 (44.6-82.7)	401
	09-10	10.7 (9.54-12.1)	12.3 (10.7-13.6)	20.2 (17.3-22.2)	36.1 (28.3-46.0)	49.8 (42.3-60.2)	420
20 years and older	01-02	2.46 (2.30-2.63)	2.40 (2.20-2.70)	5.10 (4.80-5.50)	10.6 (9.40-12.0)	16.3 (13.6-18.5)	1647
	03-04	3.46 (3.11-3.84)	3.90 (3.40-4.30)	7.50 (6.70-8.50)	13.3 (11.5-16.5)	19.9 (16.0-25.0)	1534
	05-06	4.65 (4.07-5.30)	5.40 (4.70-6.00)	10.6 (9.50-12.0)	18.7 (16.0-21.9)	29.0 (22.1-34.4)	1490
	07-08	6.47 (5.91-7.09)	7.50 (6.70-8.00)	14.1 (12.5-16.1)	24.5 (21.3-27.7)	34.2 (27.9-39.5)	1814
	09-10	7.03 (6.26-7.90)	7.55 (6.66-8.57)	14.6 (12.8-16.6)	25.7 (23.2-28.5)	38.6 (31.4-43.6)	1914
Gender Males	01-02	2.73 (2.50-2.97)	2.80 (2.40-3.20)	5.60 (5.00-6.10)	11.6 (10.1-12.6)	16.6 (13.6-20.1)	1371
	03-04	4.07 (3.56-4.66)	4.30 (3.80-5.10)	9.20 (7.50-10.2)	16.0 (13.3-18.5)	22.7 (17.3-30.3)	1250
	05-06	5.65 (5.08-6.29)	6.20 (5.60-6.90)	11.9 (10.7-13.3)	22.1 (18.7-26.5)	32.3 (25.5-39.8)	1270
	07-08	7.52 (6.84-8.26)	8.30 (7.70-9.40)	15.2 (13.6-17.2)	25.0 (21.7-28.4)	38.3 (27.3-44.2)	1294
	09-10	7.80 (6.96-8.74)	8.48 (7.44-9.16)	15.3 (14.0-17.0)	26.2 (23.2-30.9)	39.1 (31.1-46.4)	1399
Females	01-02	2.68 (2.44-2.96)	2.60 (2.30-3.00)	5.80 (5.30-6.50)	12.6 (11.0-14.7)	18.7 (16.3-24.0)	1411
	03-04	3.56 (3.19-3.97)	4.10 (3.50-4.50)	8.00 (7.10-9.10)	14.2 (12.5-16.6)	20.5 (17.9-23.0)	1355
	05-06	4.80 (4.15-5.55)	5.50 (4.70-6.60)	11.9 (10.1-13.6)	19.6 (17.0-24.1)	29.8 (24.6-35.9)	1278
	07-08	6.82 (6.21-7.49)	7.40 (6.50-8.30)	15.5 (14.5-16.9)	29.1 (27.0-32.9)	39.8 (36.2-46.7)	1310
	09-10	7.50 (6.68-8.43)	8.07 (6.94-9.62)	16.4 (14.0-18.9)	29.1 (25.3-33.5)	45.0 (36.0-52.7)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.3, 0.3, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	3.26 (2.72-3.91)	3.40 (2.70-4.30)	7.20 (6.20-9.30)	12.2 (11.2-14.7)	18.4 (14.1-25.6)	677
	03-04	4.81 (3.85-6.02)	5.10 (4.00-6.70)	10.2 (8.20-12.6)	18.3 (13.5-24.5)	26.0 (19.0-38.5)	652
	05-06	6.88 (5.58-8.48)	7.30 (6.00-8.90)	14.5 (11.5-17.5)	26.3 (20.7-34.1)	40.4 (33.8-46.8)	637
	07-08	9.30 (8.12-10.6)	10.2 (9.40-11.1)	17.4 (15.9-18.8)	31.9 (24.0-39.2)	47.6 (34.2-58.2)	531
	09-10	9.34 (8.22-10.6)	9.97 (8.31-11.6)	18.8 (16.0-21.8)	31.7 (25.6-37.2)	46.4 (37.3-54.0)	566
Non-Hispanic blacks	01-02	4.90 (4.46-5.37)	5.30 (4.60-6.00)	10.7 (9.20-12.0)	18.3 (16.1-20.1)	25.5 (20.7-31.3)	703
	03-04	6.67 (5.97-7.46)	6.90 (6.30-7.50)	12.6 (10.9-14.7)	25.7 (17.7-31.0)	33.5 (27.3-43.9)	699
	05-06	8.37 (7.06-9.91)	8.70 (7.50-10.2)	16.1 (13.8-19.7)	30.1 (22.1-37.2)	41.4 (30.1-67.7)	678
	07-08	10.7 (9.08-12.5)	12.5 (10.5-14.8)	23.1 (21.7-25.0)	38.9 (32.4-43.5)	47.6 (44.5-57.0)	597
	09-10	14.0 (11.9-16.4)	15.4 (12.9-17.8)	27.5 (22.4-34.1)	47.6 (34.4-65.6)	66.0 (46.3-85.2)	516
Non-Hispanic whites	01-02	2.33 (2.10-2.59)	2.30 (1.90-2.60)	4.90 (4.40-5.30)	9.60 (8.30-11.6)	15.6 (13.0-18.6)	1216
	03-04	3.17 (2.82-3.56)	3.50 (3.00-4.00)	6.80 (5.90-7.90)	12.5 (10.6-14.5)	17.6 (14.7-20.8)	1088
	05-06	4.41 (3.86-5.04)	5.00 (4.20-5.70)	10.3 (9.10-11.5)	18.7 (16.3-21.1)	28.8 (22.1-32.2)	1038
	07-08	6.32 (5.78-6.93)	7.20 (6.40-7.90)	13.6 (12.4-14.9)	24.3 (20.1-27.3)	33.8 (27.0-39.5)	1077
	09-10	6.34 (5.65-7.10)	6.92 (6.08-7.90)	12.9 (11.7-14.5)	21.6 (19.1-24.2)	29.6 (26.0-34.3)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.3, 0.3, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (2011 – 2014)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.00 (5.41-6.65)	6.30 (5.80-6.90)	13.0 (11.9-14.5)	25.4 (22.3-29.7)	36.5 (33.4-41.0)	2489
	13-14	7.06 (6.42-7.76)	7.50 (6.60-8.60)	14.9 (13.6-16.4)	26.1 (23.1-28.7)	39.3 (33.8-45.7)	2685
Age group							
6-11 years	11-12	8.28 (6.93-9.91)	9.40 (6.90-11.6)	18.6 (14.1-23.6)	31.8 (26.0-38.2)	43.1 (33.6-66.5)	396
	13-14	9.31 (8.03-10.8)	10.2 (8.90-11.9)	18.6 (16.3-19.8)	32.3 (25.8-38.3)	44.7 (37.2-62.3)	409
12-19 years	11-12	7.73 (6.74-8.86)	8.10 (6.90-9.60)	19.0 (14.5-23.0)	34.2 (25.3-38.5)	43.3 (36.5-45.4)	388
	13-14	9.73 (8.29-11.4)	10.1 (8.00-12.1)	19.7 (15.6-24.9)	39.4 (31.5-52.3)	59.3 (44.1-78.5)	462
20 years and older	11-12	5.57 (4.92-6.31)	6.00 (5.40-6.60)	12.2 (10.6-13.6)	23.6 (19.4-27.8)	34.4 (31.1-39.2)	1705
	13-14	6.53 (5.89-7.24)	6.90 (6.30-7.90)	14.0 (12.7-15.4)	23.6 (20.8-27.0)	35.4 (28.7-42.4)	1814
Gender							
Males	11-12	6.54 (5.70-7.51)	6.60 (5.70-7.50)	13.6 (11.7-15.8)	27.6 (21.8-35.1)	39.3 (33.6-46.9)	1259
	13-14	7.42 (6.64-8.30)	7.70 (6.60-8.90)	14.7 (13.1-16.5)	25.4 (21.7-28.7)	35.5 (29.5-43.0)	1285
Females	11-12	5.52 (4.95-6.15)	6.10 (5.60-6.80)	12.7 (11.3-14.5)	24.1 (21.2-26.3)	32.7 (30.2-36.5)	1230
	13-14	6.73 (6.00-7.54)	7.20 (6.40-8.10)	15.0 (13.5-16.6)	26.4 (23.1-32.3)	43.1 (35.6-51.7)	1400
Race/ethnicity							
Mexican Americans	11-12	6.71 (5.77-7.82)	6.60 (5.30-8.40)	12.4 (10.5-15.2)	23.7 (15.5-31.2)	33.4 (23.7-54.7)	316
	13-14	8.79 (6.87-11.3)	8.70 (6.50-12.2)	17.4 (12.8-23.6)	32.8 (26.5-43.0)	49.3 (40.7-55.9)	438
Non-Hispanic blacks	11-12	9.88 (8.55-11.4)	10.4 (8.90-12.5)	19.7 (16.5-23.6)	36.5 (30.8-41.2)	49.9 (41.2-67.8)	665
	13-14	10.5 (9.44-11.6)	11.2 (9.60-12.4)	20.7 (18.2-22.9)	42.2 (34.8-47.2)	58.0 (46.1-74.6)	609
Non-Hispanic whites	11-12	5.23 (4.71-5.82)	5.50 (4.90-6.00)	11.7 (9.40-13.3)	23.7 (17.6-28.8)	34.2 (28.6-37.7)	813
	13-14	6.12 (5.48-6.82)	6.60 (5.60-7.70)	13.6 (11.8-15.0)	22.7 (19.7-25.0)	30.2 (26.8-35.4)	987
All Hispanics	11-12	7.22 (5.89-8.87)	7.70 (5.70-10.0)	13.7 (11.4-18.2)	24.8 (18.8-32.4)	33.4 (23.9-64.8)	571
	13-14	8.90 (7.59-10.4)	8.80 (7.10-10.6)	17.5 (13.2-21.8)	32.4 (27.6-43.0)	50.5 (40.7-55.9)	690
Asians	11-12	5.70 (4.35-7.46)	6.20 (4.30-8.70)	13.8 (9.80-21.2)	27.8 (19.9-39.3)	40.1 (27.8-65.3)	352
	13-14	6.47 (5.47-7.66)	6.50 (5.20-8.20)	13.7 (10.8-16.4)	21.5 (17.9-24.7)	26.8 (22.7-33.6)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.8, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.54 (2.36-2.73)	2.46 (2.26-2.68)	4.54 (4.20-4.86)	8.02 (7.78-8.66)	12.0 (10.8-13.5)	2782
	03-04	3.57 (3.18-4.00)	3.57 (3.15-4.08)	6.21 (5.36-7.17)	10.9 (9.47-12.7)	15.4 (12.8-18.6)	2605
	05-06	5.07 (4.68-5.50)	5.07 (4.74-5.45)	8.81 (8.08-9.55)	15.2 (13.4-16.5)	21.3 (18.3-24.3)	2548
	07-08	7.21 (6.76-7.70)	7.25 (6.77-7.81)	12.1 (11.2-13.3)	19.5 (17.2-21.5)	27.8 (24.9-31.3)	2604
	09-10	7.98 (7.34-8.68)	7.86 (7.12-8.52)	12.4 (11.2-14.1)	20.1 (17.3-23.0)	26.8 (23.7-32.8)	2749
Age group 6-11 years	01-02	4.81 (3.89-5.94)	5.18 (4.13-6.32)	9.20 (7.03-11.7)	15.2 (11.1-24.3)	24.3 (13.9-40.3)	393
	03-04	6.94 (5.79-8.31)	7.03 (5.29-8.95)	11.8 (9.56-15.1)	18.6 (15.1-25.1)	28.7 (21.8-36.9)	342
	05-06	9.39 (8.56-10.3)	9.46 (8.50-10.3)	15.3 (13.0-18.1)	25.2 (21.6-30.1)	37.9 (28.0-65.5)	356
	07-08	13.2 (11.1-15.5)	12.9 (10.5-15.7)	21.9 (17.8-26.0)	35.5 (28.3-43.5)	52.6 (41.4-58.3)	389
	09-10	13.2 (11.8-14.9)	12.6 (11.0-14.7)	20.9 (18.7-24.9)	35.3 (28.6-46.1)	53.0 (39.1-95.1)	415
12-19 years	01-02	2.68 (2.29-3.15)	2.83 (2.39-3.33)	4.79 (4.04-5.51)	7.62 (6.18-10.2)	12.8 (8.76-15.6)	742
	03-04	3.41 (2.86-4.05)	3.69 (2.99-4.31)	5.75 (4.69-7.04)	9.32 (7.17-12.0)	13.5 (9.52-20.1)	729
	05-06	5.56 (5.05-6.11)	5.82 (5.20-6.53)	9.05 (8.06-10.4)	14.3 (13.4-16.5)	20.3 (17.7-26.8)	702
	07-08	7.95 (6.96-9.09)	8.30 (6.89-9.76)	13.7 (11.3-15.7)	21.3 (16.3-28.4)	28.7 (20.5-62.6)	401
	09-10	8.63 (7.97-9.34)	8.94 (7.87-9.78)	12.7 (11.7-14.9)	19.5 (16.5-25.3)	28.8 (20.6-53.4)	420
20 years and older	01-02	2.33 (2.20-2.46)	2.26 (2.08-2.43)	3.89 (3.65-4.25)	7.31 (7.00-7.78)	10.6 (9.46-11.3)	1647
	03-04	3.32 (3.00-3.68)	3.33 (3.00-3.81)	5.59 (4.93-6.51)	9.84 (8.65-11.2)	13.5 (11.4-16.0)	1534
	05-06	4.66 (4.23-5.13)	4.62 (4.36-5.03)	8.00 (7.23-8.78)	13.5 (11.6-15.7)	18.2 (16.1-23.0)	1490
	07-08	6.65 (6.21-7.12)	6.73 (6.29-7.20)	11.1 (10.2-12.1)	17.1 (15.6-18.6)	23.8 (21.0-26.7)	1814
	09-10	7.45 (6.81-8.15)	7.24 (6.69-7.89)	11.6 (10.4-12.6)	17.7 (15.1-21.9)	23.8 (20.7-28.8)	1914
Gender Males	01-02	2.22 (2.09-2.35)	2.18 (1.97-2.37)	3.76 (3.58-4.11)	7.38 (6.64-7.95)	11.1 (10.1-12.5)	1371
	03-04	3.20 (2.80-3.66)	3.19 (2.74-3.56)	5.84 (4.79-6.56)	10.0 (8.27-12.2)	13.9 (11.5-19.1)	1250
	05-06	4.54 (4.19-4.92)	4.45 (4.21-4.81)	7.95 (6.95-8.73)	13.4 (11.6-15.8)	18.5 (16.7-19.8)	1270
	07-08	6.33 (5.91-6.79)	6.36 (5.93-6.77)	10.4 (9.43-11.3)	16.4 (15.0-19.7)	24.1 (21.1-27.7)	1294
	09-10	6.99 (6.44-7.59)	6.70 (6.26-7.21)	10.6 (9.80-11.5)	17.5 (15.4-19.8)	23.4 (20.9-27.3)	1399
Females	01-02	2.88 (2.61-3.18)	2.85 (2.52-3.18)	5.14 (4.67-5.89)	8.66 (8.02-10.1)	13.7 (11.1-15.0)	1411
	03-04	3.96 (3.56-4.42)	4.00 (3.57-4.45)	6.73 (5.64-7.80)	11.6 (10.2-13.0)	15.7 (13.0-18.7)	1355
	05-06	5.64 (5.04-6.32)	5.86 (5.39-6.39)	9.61 (8.85-10.6)	15.8 (14.3-18.1)	24.3 (18.7-32.5)	1278
	07-08	8.18 (7.46-8.96)	8.70 (7.78-9.47)	13.9 (12.2-15.2)	21.3 (18.3-25.3)	31.6 (26.4-34.7)	1310
	09-10	9.05 (8.22-9.97)	9.13 (8.19-9.90)	14.4 (12.2-16.2)	22.0 (18.1-26.3)	29.8 (25.8-36.4)	1350

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	3.07 (2.58-3.66)	2.98 (2.53-3.82)	5.82 (4.91-6.99)	10.6 (8.28-13.3)	16.0 (12.6-19.4)	677
	03-04	4.34 (3.47-5.43)	4.47 (3.53-5.24)	7.75 (6.33-9.69)	13.1 (11.9-16.8)	23.3 (17.9-26.1)	652
	05-06	6.19 (5.24-7.31)	6.17 (5.59-7.02)	10.9 (9.61-12.3)	18.6 (17.1-21.5)	28.3 (23.7-36.2)	637
	07-08	9.07 (7.87-10.5)	8.94 (8.07-10.3)	14.6 (12.4-18.0)	25.9 (21.1-32.4)	36.1 (28.0-42.3)	531
	09-10	9.27 (8.37-10.3)	8.95 (8.00-10.0)	14.6 (12.8-17.3)	25.6 (23.1-28.2)	40.6 (28.7-47.4)	566
Non-Hispanic blacks	01-02	3.44 (3.20-3.69)	3.52 (2.95-3.81)	6.11 (5.03-7.04)	10.6 (8.94-12.4)	15.6 (12.6-19.7)	703
	03-04	4.74 (4.07-5.51)	4.65 (4.10-5.30)	7.81 (6.38-10.0)	15.2 (10.8-18.4)	19.9 (15.7-28.7)	699
	05-06	5.88 (5.12-6.76)	5.86 (5.03-7.03)	9.74 (8.21-11.3)	14.9 (12.0-19.9)	21.4 (14.9-29.7)	678
	07-08	8.28 (7.20-9.52)	8.96 (8.33-9.71)	14.4 (12.9-15.7)	21.6 (20.3-24.3)	29.6 (24.3-37.7)	597
	09-10	10.1 (8.76-11.7)	10.5 (9.41-11.6)	15.2 (12.9-19.2)	24.1 (19.3-32.2)	33.2 (26.3-42.0)	516
Non-Hispanic whites	01-02	2.31 (2.11-2.52)	2.20 (2.01-2.43)	3.80 (3.53-4.39)	7.30 (6.72-7.78)	10.7 (9.62-12.6)	1216
	03-04	3.13 (2.76-3.54)	3.17 (2.76-3.72)	5.28 (4.55-6.21)	8.92 (7.64-10.3)	11.8 (10.2-15.1)	1088
	05-06	4.64 (4.25-5.07)	4.58 (4.35-4.91)	8.28 (7.45-9.01)	13.7 (12.2-15.6)	18.8 (16.9-22.2)	1038
	07-08	6.60 (6.14-7.10)	6.70 (6.26-7.08)	10.9 (10.0-12.1)	17.0 (15.2-20.5)	24.9 (20.5-29.1)	1077
	09-10	7.12 (6.62-7.66)	6.95 (6.51-7.40)	10.7 (10.1-11.8)	17.0 (14.6-20.3)	22.0 (19.1-26.2)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isobutyl phthalate (MiBP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.83 (6.30-7.40)	6.77 (6.19-7.27)	11.6 (10.9-12.6)	19.4 (17.5-22.6)	27.5 (24.5-31.6)	2487
	13-14	7.07 (6.67-7.50)	7.00 (6.67-7.37)	11.2 (10.7-11.9)	18.9 (17.1-20.8)	26.2 (23.3-30.0)	2684
Age group							
6-11 years	11-12	11.8 (10.2-13.6)	12.2 (10.4-14.2)	18.5 (16.2-22.4)	31.1 (24.5-46.3)	46.4 (30.8-70.0)	395
	13-14	11.8 (10.6-13.1)	11.5 (10.8-12.9)	18.9 (16.5-22.7)	33.8 (25.3-44.0)	46.4 (41.1-56.3)	409
12-19 years	11-12	7.53 (6.81-8.32)	7.61 (6.84-8.26)	11.7 (10.9-13.8)	19.9 (14.9-24.8)	25.6 (20.6-33.5)	388
	13-14	7.90 (7.38-8.45)	7.72 (7.18-8.31)	12.3 (10.4-14.9)	21.0 (18.0-26.2)	32.4 (23.1-39.1)	462
20 years and older	11-12	6.34 (5.83-6.89)	6.19 (5.56-6.85)	10.8 (9.54-11.6)	18.1 (15.5-20.1)	25.2 (23.3-29.9)	1704
	13-14	6.58 (6.15-7.04)	6.54 (6.13-7.00)	10.5 (9.91-11.2)	16.7 (15.4-19.0)	23.9 (19.8-28.2)	1813
Gender							
Males	11-12	6.13 (5.47-6.86)	5.91 (5.12-6.88)	10.7 (8.81-12.2)	17.6 (14.6-22.4)	25.8 (22.2-33.3)	1258
	13-14	6.23 (5.78-6.72)	6.09 (5.72-6.59)	10.2 (9.38-10.8)	16.6 (14.6-18.4)	23.2 (18.5-28.9)	1284
Females	11-12	7.58 (7.03-8.17)	7.57 (6.94-7.90)	12.8 (11.6-13.8)	21.2 (18.5-24.5)	28.5 (25.2-31.6)	1229
	13-14	7.98 (7.58-8.41)	8.00 (7.44-8.56)	12.4 (11.5-13.6)	21.1 (19.1-23.9)	29.5 (25.3-33.9)	1400
Race/ethnicity							
Mexican Americans	11-12	7.57 (6.49-8.81)	7.00 (5.61-8.77)	12.3 (9.74-15.2)	18.4 (15.2-30.8)	33.1 (18.0-61.6)	316
	13-14	8.96 (7.59-10.6)	8.75 (6.71-10.5)	14.4 (11.8-18.2)	26.7 (20.9-31.5)	34.9 (29.2-45.4)	438
Non-Hispanic blacks	11-12	7.69 (6.69-8.83)	7.83 (6.73-8.89)	13.2 (10.6-15.4)	20.6 (17.1-26.9)	30.9 (24.5-35.8)	665
	13-14	7.74 (7.14-8.39)	7.30 (6.79-7.98)	12.7 (11.7-13.8)	21.4 (19.0-24.0)	33.2 (24.2-41.9)	609
Non-Hispanic whites	11-12	6.36 (5.68-7.12)	6.12 (5.43-6.93)	11.0 (9.52-11.8)	18.5 (14.8-22.9)	25.8 (21.2-33.8)	811
	13-14	6.44 (5.96-6.96)	6.51 (6.04-6.98)	10.3 (9.23-11.2)	16.7 (15.4-18.0)	22.1 (18.9-25.8)	987
All Hispanics	11-12	8.09 (6.94-9.43)	8.02 (6.80-9.43)	13.0 (10.6-15.9)	21.0 (15.6-30.5)	30.5 (20.5-45.0)	571
	13-14	8.83 (7.82-9.98)	8.53 (7.02-10.0)	14.3 (12.0-16.8)	26.0 (21.2-29.7)	34.8 (29.6-44.5)	690
Asians	11-12	7.64 (6.21-9.39)	7.84 (6.10-9.68)	14.3 (10.5-17.7)	25.0 (18.2-30.6)	33.2 (22.5-55.5)	352
	13-14	8.19 (7.41-9.05)	8.04 (6.60-9.52)	13.0 (11.8-15.0)	22.7 (18.5-25.9)	32.8 (24.5-40.0)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-methyl-2-hydroxypropyl phthalate (MHiBP) (2013 – 2014)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	2.50 (2.31-2.72)	2.60 (2.40-2.90)	5.20 (4.80-5.60)	9.40 (8.70-10.1)	13.7 (11.9-15.5)	2681
Age group							
6-11 years	13-14	3.95 (3.37-4.63)	4.30 (3.70-4.80)	7.30 (6.50-8.90)	11.8 (10.7-13.6)	15.3 (13.3-20.2)	409
12-19 years	13-14	3.64 (3.10-4.29)	3.70 (3.10-4.30)	7.20 (5.90-8.70)	15.8 (12.1-19.5)	25.2 (16.9-33.5)	461
20 years and older	13-14	2.25 (2.07-2.45)	2.40 (2.20-2.60)	4.70 (4.40-5.00)	8.30 (7.50-9.30)	11.8 (10.4-13.6)	1811
Gender							
Males	13-14	2.56 (2.29-2.87)	2.80 (2.40-3.20)	4.90 (4.50-5.50)	8.90 (7.60-10.7)	12.6 (11.0-15.2)	1284
Females	13-14	2.45 (2.21-2.70)	2.50 (2.20-2.80)	5.40 (4.90-6.10)	9.60 (8.60-10.7)	14.4 (12.3-17.1)	1397
Race/ethnicity							
Mexican Americans	13-14	2.85 (2.13-3.81)	2.90 (2.00-4.50)	6.20 (4.80-7.60)	11.4 (9.10-13.3)	14.7 (12.7-17.7)	438
Non-Hispanic blacks	13-14	3.61 (3.17-4.11)	3.70 (3.30-4.20)	7.10 (6.40-7.70)	14.6 (11.7-17.9)	20.6 (17.6-24.7)	608
Non-Hispanic whites	13-14	2.26 (2.05-2.49)	2.40 (2.20-2.70)	4.70 (4.40-5.00)	8.30 (7.30-9.50)	11.4 (9.60-13.2)	986
All Hispanics	13-14	2.89 (2.39-3.49)	3.10 (2.40-3.80)	6.00 (4.90-7.60)	11.3 (9.40-14.3)	15.7 (13.6-18.9)	690
Asians	13-14	2.07 (1.74-2.45)	2.10 (1.60-2.70)	4.30 (3.60-5.50)	7.30 (5.80-9.50)	9.70 (7.50-15.6)	287

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.4.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-methyl-2-hydroxypropyl phthalate (MHBP) (creatinine corrected) (2013 – 2014)

Metabolite of Di-isobutyl phthalate (DiBP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	2.51 (2.37-2.66)	2.55 (2.33-2.73)	4.05 (3.86-4.33)	7.12 (6.39-7.54)	9.44 (8.79-10.7)	2680
Age group							
6-11 years	13-14	4.99 (4.44-5.61)	4.74 (3.94-5.97)	8.56 (7.24-10.0)	13.8 (11.9-15.3)	16.5 (15.0-25.3)	409
12-19 years	13-14	2.96 (2.70-3.24)	2.84 (2.60-3.10)	4.70 (3.89-5.52)	8.42 (7.54-10.0)	12.1 (9.36-15.3)	461
20 years and older	13-14	2.27 (2.12-2.44)	2.34 (2.12-2.57)	3.67 (3.44-3.89)	5.78 (5.38-6.36)	7.59 (7.19-8.55)	1810
Gender							
Males	13-14	2.16 (1.99-2.33)	2.15 (1.92-2.40)	3.51 (3.26-3.74)	6.19 (5.42-6.83)	8.56 (7.49-10.2)	1283
Females	13-14	2.90 (2.71-3.11)	2.86 (2.64-3.09)	4.69 (4.27-5.05)	7.64 (7.07-8.48)	10.4 (8.99-12.5)	1397
Race/ethnicity							
Mexican Americans	13-14	2.90 (2.35-3.58)	2.95 (2.30-3.53)	5.46 (4.12-6.39)	8.79 (7.19-11.6)	12.5 (9.66-16.5)	438
Non-Hispanic blacks	13-14	2.67 (2.40-2.97)	2.70 (2.33-2.96)	4.39 (3.69-5.00)	7.16 (6.30-8.42)	11.2 (8.42-14.4)	608
Non-Hispanic whites	13-14	2.38 (2.16-2.62)	2.43 (2.14-2.75)	3.81 (3.38-4.14)	6.27 (5.19-7.49)	8.55 (7.57-9.38)	986
All Hispanics	13-14	2.87 (2.47-3.33)	2.88 (2.46-3.29)	5.38 (4.25-5.96)	8.75 (7.18-11.0)	13.0 (10.9-16.5)	690
Asians	13-14	2.64 (2.38-2.94)	2.64 (2.22-2.87)	4.65 (4.09-5.50)	7.73 (6.36-9.60)	9.94 (8.63-12.3)	286

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-cyclohexyl phthalate (MCHP) (1999 – 2010)‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-3.42)	2541	
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	2782	
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.804)	2605	
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604	
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749	
Age group 6-11 years	99-00	*	< LOD	< LOD	2.01 (<LOD-2.21)	3.42 (2.01-7.64)	328	
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.21 (1.01-1.41)	393	
	03-04	*	< LOD	< LOD	.603 (<LOD-.804)	1.01 (.603-1.01)	342	
	05-06	*	< LOD	< LOD	< LOD	< LOD	356	
	07-08	*	< LOD	< LOD	< LOD	< LOD	389	
	09-10	*	< LOD	< LOD	< LOD	.960 (.640-1.57)	415	
12-19 years	99-00	*	< LOD	< LOD	2.01 (<LOD-3.02)	3.42 (2.01-5.03)	752	
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	742	
	03-04	*	< LOD	< LOD	.402 (<LOD-.603)	.804 (.603-1.21)	729	
	05-06	*	< LOD	< LOD	< LOD	< LOD	702	
	07-08	*	< LOD	< LOD	< LOD	< LOD	401	
	09-10	*	< LOD	< LOD	< LOD	< LOD	420	
20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1461	
	01-02	*	< LOD	< LOD	.804 (<LOD-1.01)	1.01 (.804-1.21)	1647	
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.603)	1534	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814	
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914	
Gender	Males	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-4.02)	1215
		01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.21)	1371
		03-04	*	< LOD	< LOD	< LOD	.603 (.603-.804)	1250
		05-06	*	< LOD	< LOD	< LOD	< LOD	1270
		07-08	*	< LOD	< LOD	< LOD	< LOD	1294
		09-10	*	< LOD	< LOD	< LOD	< LOD	1399
	Females	99-00	*	< LOD	< LOD	< LOD	2.21 (<LOD-3.82)	1326
		01-02	*	< LOD	< LOD	.804 (<LOD-.804)	1.01 (.804-1.01)	1411
		03-04	*	< LOD	< LOD	< LOD	.603 (.402-1.01)	1355
		05-06	*	< LOD	< LOD	< LOD	< LOD	1278
		07-08	*	< LOD	< LOD	< LOD	< LOD	1310
		09-10	*	< LOD	< LOD	< LOD	< LOD	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.81, 0.603, 0.402, 0.603, 0.603 and 0.402 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-cyclohexyl phthalate (MCHP) (1999 – 2010)‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	.804 (<LOD-1.01)	1.01 (.603-1.41)	677
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-1.01)	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	.440 (<LOD-.640)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	2.21 (1.81-2.41)	603
	01-02	*	< LOD	< LOD	.804 (.603-1.01)	1.01 (.804-1.41)	703
	03-04	*	< LOD	< LOD	.603 (.402-.603)	.804 (.603-1.01)	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	.480 (<LOD-.620)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	2.01 (<LOD-3.42)	912
	01-02	*	< LOD	< LOD	.804 (<LOD-.804)	1.01 (.804-1.21)	1216
	03-04	*	< LOD	< LOD	< LOD	.603 (.402-.804)	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.81, 0.603, 0.402, 0.603, 0.603 and 0.402 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-cyclohexyl phthalate (MCHP) (creatinine corrected) (1999 – 2010)‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	< LOD	6.03 (<LOD-6.69)	2541	
	01-02	*	< LOD	< LOD	1.23 (1.07-1.39)	1.83 (1.55-2.01)	2782	
	03-04	*	< LOD	< LOD	< LOD	.905 (.804-1.01)	2605	
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604	
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749	
Age group	6-11 years	99-00	*	< LOD	< LOD	3.10 (<LOD-4.70)	5.67 (3.10-12.9)	328
		01-02	*	< LOD	< LOD	1.39 (1.03-1.49)	1.89 (1.39-2.35)	393
		03-04	*	< LOD	< LOD	.744 (<LOD-1.07)	1.07 (.704-1.67)	342
		05-06	*	< LOD	< LOD	< LOD	< LOD	356
		07-08	*	< LOD	< LOD	< LOD	< LOD	389
		09-10	*	< LOD	< LOD	< LOD	1.80 (1.34-2.55)	415
	12-19 years	99-00	*	< LOD	< LOD	2.45 (<LOD-3.10)	3.36 (2.73-3.66)	752
		01-02	*	< LOD	< LOD	.945 (.764-1.33)	1.55 (1.07-2.37)	742
		03-04	*	< LOD	< LOD	.442 (<LOD-.543)	.764 (.482-1.25)	729
		05-06	*	< LOD	< LOD	< LOD	< LOD	702
		07-08	*	< LOD	< LOD	< LOD	< LOD	401
		09-10	*	< LOD	< LOD	< LOD	< LOD	420
	20 years and older	99-00	*	< LOD	< LOD	< LOD	< LOD	1461
		01-02	*	< LOD	< LOD	1.27 (<LOD-1.39)	1.83 (1.55-2.11)	1647
		03-04	*	< LOD	< LOD	< LOD	.905 (.804-1.01)	1534
		05-06	*	< LOD	< LOD	< LOD	< LOD	1490
		07-08	*	< LOD	< LOD	< LOD	< LOD	1814
		09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender	Males	99-00	*	< LOD	< LOD	< LOD	4.30 (<LOD-6.35)	1215
		01-02	*	< LOD	< LOD	1.03 (.844-1.33)	1.77 (1.35-2.13)	1371
		03-04	*	< LOD	< LOD	< LOD	.663 (.583-1.01)	1250
		05-06	*	< LOD	< LOD	< LOD	< LOD	1270
		07-08	*	< LOD	< LOD	< LOD	< LOD	1294
		09-10	*	< LOD	< LOD	< LOD	< LOD	1399
	Females	99-00	*	< LOD	< LOD	< LOD	6.69 (<LOD-7.10)	1326
		01-02	*	< LOD	< LOD	1.35 (<LOD-1.55)	1.83 (1.61-2.21)	1411
		03-04	*	< LOD	< LOD	< LOD	1.01 (.844-1.19)	1355
		05-06	*	< LOD	< LOD	< LOD	< LOD	1278
		07-08	*	< LOD	< LOD	< LOD	< LOD	1310
		09-10	*	< LOD	< LOD	< LOD	< LOD	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-cyclohexyl phthalate (MCHP) (creatinine corrected) (1999 – 2010)‡

Metabolite of Dicyclohexyl phthalate (DCHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	< LOD	814
	01-02	*	< LOD	< LOD	1.19 (<LOD-1.39)	1.91 (1.59-2.23)	677
	03-04	*	< LOD	< LOD	< LOD	.784 (.623-1.13)	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	1.20 (<LOD-1.56)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	< LOD	2.87 (2.25-3.50)	603
	01-02	*	< LOD	< LOD	.824 (.724-.985)	1.19 (1.01-1.43)	703
	03-04	*	< LOD	< LOD	.503 (.342-.623)	.663 (.523-.945)	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	.880 (<LOD-1.08)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	6.35 (<LOD-7.10)	912
	01-02	*	< LOD	< LOD	1.27 (<LOD-1.49)	1.83 (1.55-2.13)	1216
	03-04	*	< LOD	< LOD	< LOD	.965 (.844-1.07)	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 2.01 for survey periods 1999-2008 compared with results previously released.

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DCHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-ethyl phthalate (MEP) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	118 (103-135)	108 (90.0-132)	300 (244-355)	830 (664-977)	1870 (1420-2490)	2536
	01-02	117 (105-131)	112 (93.0-128)	307 (274-348)	813 (688-947)	1650 (1230-2130)	2782
	03-04	127 (112-145)	115 (99.9-137)	332 (302-366)	909 (769-1150)	1780 (1420-2180)	2605
	05-06	108 (95.5-123)	102 (83.4-121)	284 (257-323)	750 (707-825)	1410 (1140-1830)	2548
	07-08	90.4 (80.3-102)	81.1 (70.8-93.5)	239 (205-272)	605 (493-713)	1180 (821-1760)	2604
	09-10	64.4 (58.3-71.2)	54.9 (50.5-62.7)	163 (145-187)	485 (374-604)	988 (805-1180)	2749
Age group 6-11 years	99-00	60.3 (49.4-73.6)	49.8 (41.0-61.8)	130 (85.2-164)	249 (192-481)	499 (250-703)	328
	01-02	56.2 (47.0-67.2)	47.5 (40.9-61.1)	121 (93.7-143)	297 (208-420)	533 (377-717)	393
	03-04	62.9 (54.3-72.9)	53.9 (46.4-67.9)	130 (112-159)	344 (195-377)	546 (358-949)	342
	05-06	55.7 (45.7-67.9)	47.9 (38.3-61.6)	111 (73.9-147)	289 (173-368)	522 (326-719)	356
	07-08	49.0 (42.4-56.6)	45.2 (38.5-53.3)	108 (80.5-135)	193 (155-227)	296 (214-359)	389
	09-10	35.2 (31.2-39.8)	33.0 (29.8-37.8)	68.7 (54.3-80.9)	151 (114-207)	288 (205-530)	415
12-19 years	99-00	139 (105-183)	127 (92.8-169)	372 (276-540)	994 (694-1420)	2150 (1020-2920)	752
	01-02	130 (105-161)	121 (97.9-150)	316 (256-429)	835 (649-974)	1360 (969-2020)	742
	03-04	148 (123-178)	146 (109-194)	367 (285-459)	828 (642-1030)	1520 (900-2180)	729
	05-06	126 (108-146)	114 (96.4-134)	315 (256-390)	765 (636-1060)	1360 (1030-1680)	702
	07-08	98.6 (79.1-123)	97.4 (68.3-130)	214 (173-330)	477 (356-705)	821 (511-1270)	401
	09-10	64.0 (50.1-81.8)	53.9 (39.0-75.4)	151 (101-228)	354 (260-497)	662 (371-1190)	420
20 years and older	99-00	125 (108-145)	119 (92.6-146)	318 (257-389)	882 (666-1100)	2300 (1470-3060)	1456
	01-02	126 (113-141)	120 (101-140)	329 (291-374)	888 (702-1100)	1800 (1420-2420)	1647
	03-04	135 (116-157)	124 (104-145)	351 (311-415)	1050 (807-1370)	1970 (1480-2510)	1534
	05-06	114 (99.0-132)	111 (87.1-131)	299 (268-346)	782 (724-901)	1480 (1140-2080)	1490
	07-08	95.3 (85.4-106)	84.7 (75.6-97.8)	264 (235-299)	673 (539-823)	1470 (913-1920)	1814
	09-10	69.0 (61.8-76.9)	60.5 (54.0-68.7)	183 (159-207)	557 (445-712)	1110 (875-1350)	1914
Gender Males	99-00	118 (98.5-142)	102 (78.3-130)	345 (246-429)	948 (672-1500)	2310 (1400-3010)	1214
	01-02	120 (103-139)	113 (91.8-131)	331 (276-398)	957 (703-1390)	2040 (1390-2900)	1371
	03-04	130 (114-148)	113 (97.8-133)	354 (296-432)	1000 (801-1370)	1920 (1460-2300)	1250
	05-06	107 (92.1-124)	95.9 (75.8-120)	279 (227-340)	757 (651-855)	1470 (923-1930)	1270
	07-08	92.8 (80.1-107)	81.0 (70.4-93.3)	245 (194-298)	659 (481-867)	1450 (851-1900)	1294
	09-10	61.0 (54.2-68.6)	52.8 (45.4-58.3)	157 (126-202)	436 (342-586)	965 (768-1170)	1399
Females	99-00	118 (102-136)	115 (91.3-139)	280 (231-335)	652 (581-813)	1470 (903-2560)	1322
	01-02	115 (101-131)	110 (91.5-128)	282 (255-329)	692 (580-867)	1230 (982-1650)	1411
	03-04	125 (106-148)	120 (90.9-145)	316 (258-372)	830 (639-1080)	1710 (1190-2260)	1355
	05-06	110 (92.8-130)	109 (86.8-130)	291 (252-346)	734 (671-871)	1310 (1140-1900)	1278
	07-08	88.2 (77.8-99.9)	82.4 (67.6-101)	233 (202-264)	553 (462-703)	1050 (713-1680)	1310
	09-10	67.8 (60.3-76.4)	59.6 (52.4-73.7)	164 (148-192)	548 (392-675)	988 (777-1340)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.792, 0.594, 0.264, 0.528, 0.462, and 0.396 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-ethyl phthalate (MEP) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	119 (103-138)	115 (96.5-138)	291 (257-357)	842 (561-996)	1130 (966-1410)	813
	01-02	149 (129-173)	145 (125-174)	349 (293-435)	984 (690-1390)	1730 (1010-2940)	677
	03-04	176 (158-196)	164 (140-202)	394 (345-454)	1080 (873-1440)	2010 (1470-2840)	652
	05-06	163 (130-203)	161 (124-186)	384 (310-466)	1030 (682-1830)	1930 (1170-3330)	637
	07-08	122 (105-141)	111 (82.0-144)	314 (270-372)	850 (604-971)	1180 (971-1520)	531
	09-10	82.2 (70.0-96.5)	72.6 (59.6-84.0)	199 (142-254)	586 (415-869)	1300 (818-1760)	566
Non-Hispanic blacks	99-00	213 (182-249)	202 (169-231)	521 (419-626)	1250 (932-1500)	2380 (1410-3060)	603
	01-02	233 (214-253)	235 (191-269)	563 (468-718)	1430 (1070-1630)	2340 (1860-3350)	703
	03-04	236 (205-272)	202 (167-273)	626 (507-760)	1650 (1220-1970)	2880 (1840-3900)	699
	05-06	219 (189-254)	199 (163-253)	522 (440-700)	1450 (1070-1900)	2610 (1900-3600)	678
	07-08	168 (145-195)	165 (132-202)	415 (343-493)	994 (711-1260)	1920 (1090-3370)	597
	09-10	156 (130-188)	137 (113-159)	405 (276-543)	1190 (841-1570)	1930 (1430-3380)	516
Non-Hispanic whites	99-00	101 (87.6-116)	88.4 (71.0-104)	242 (189-318)	651 (527-882)	1630 (1050-2560)	908
	01-02	104 (92.8-117)	96.8 (78.8-117)	273 (241-297)	672 (598-813)	1530 (1030-1800)	1216
	03-04	110 (95.4-128)	97.8 (82.4-115)	276 (242-315)	801 (630-975)	1480 (1050-2170)	1088
	05-06	91.3 (80.3-104)	84.2 (69.4-111)	232 (196-278)	600 (500-715)	1140 (757-1550)	1038
	07-08	78.9 (70.4-88.5)	68.9 (59.8-80.1)	199 (175-233)	506 (429-650)	880 (670-1500)	1077
	09-10	52.1 (48.1-56.5)	45.1 (40.0-51.6)	127 (106-140)	309 (259-394)	768 (468-988)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.792, 0.594, 0.264, 0.528, 0.462, and 0.396 respectively.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-ethyl phthalate (MEP) (2011 – 2014)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	37.9 (33.0-43.5)	31.1 (27.3-37.9)	96.4 (83.7-114)	277 (227-367)	570 (419-738)	2489
	13-14	35.7 (32.1-39.8)	29.9 (27.4-33.1)	82.4 (68.5-98.1)	253 (211-329)	560 (420-684)	2685
Age group							
6-11 years	11-12	23.4 (18.7-29.2)	24.5 (18.9-28.7)	49.8 (38.4-70.6)	112 (85.0-165)	199 (139-277)	396
	13-14	24.5 (20.6-29.2)	22.0 (18.4-27.9)	50.0 (36.5-66.2)	133 (88.8-241)	249 (131-390)	409
12-19 years	11-12	36.2 (27.9-47.0)	30.6 (24.0-40.4)	86.7 (59.0-129)	216 (155-256)	378 (254-642)	388
	13-14	33.2 (29.3-37.8)	29.8 (24.9-35.6)	77.7 (56.3-96.4)	171 (132-218)	340 (226-459)	462
20 years and older	11-12	40.2 (34.9-46.5)	32.0 (27.6-40.9)	105 (93.7-119)	315 (253-406)	688 (460-801)	1705
	13-14	37.6 (33.3-42.6)	31.5 (28.4-35.0)	87.7 (71.1-110)	296 (228-368)	632 (455-821)	1814
Gender							
Males	11-12	38.1 (33.3-43.7)	29.6 (26.1-35.9)	93.8 (75.3-118)	262 (227-369)	566 (371-875)	1259
	13-14	36.1 (32.0-40.8)	28.8 (25.1-33.7)	82.4 (61.3-104)	299 (203-387)	588 (405-897)	1285
Females	11-12	37.7 (30.6-46.4)	32.5 (25.2-45.3)	101 (82.8-118)	295 (207-406)	596 (447-727)	1230
	13-14	35.4 (29.9-41.8)	31.2 (26.2-38.2)	82.2 (68.0-103)	231 (193-308)	485 (374-632)	1400
Race/ethnicity							
Mexican Americans	11-12	49.5 (39.3-62.3)	39.3 (34.0-47.0)	120 (69.8-163)	375 (259-561)	874 (394-1420)	316
	13-14	44.7 (38.5-51.9)	37.0 (28.8-47.6)	106 (85.8-134)	316 (196-435)	568 (353-897)	438
Non-Hispanic blacks	11-12	89.2 (77.9-102)	82.1 (71.0-93.2)	196 (166-229)	524 (381-669)	942 (653-1790)	665
	13-14	74.3 (67.9-81.3)	63.3 (52.4-75.3)	175 (156-218)	513 (381-616)	1160 (875-1710)	609
Non-Hispanic whites	11-12	30.4 (26.0-35.6)	25.4 (20.1-29.2)	77.6 (64.2-92.9)	221 (166-290)	460 (290-697)	813
	13-14	28.5 (26.1-31.3)	24.5 (21.4-27.4)	58.1 (49.5-67.3)	191 (130-241)	377 (277-632)	987
All Hispanics	11-12	55.5 (44.2-69.6)	47.6 (38.0-59.6)	132 (99.9-180)	406 (334-537)	809 (461-1240)	571
	13-14	49.4 (42.6-57.4)	42.2 (37.0-50.9)	113 (96.4-140)	376 (237-501)	681 (454-1020)	690
Asians	11-12	23.3 (17.9-30.3)	18.8 (13.9-28.3)	60.7 (38.6-89.5)	166 (109-289)	405 (175-1080)	352
	13-14	23.7 (20.7-27.1)	19.3 (15.4-24.0)	54.6 (42.8-72.0)	166 (103-293)	316 (187-433)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.6 and 1.2, respectively.

Biomonitoring Summary

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Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	107 (98.0-118)	93.0 (85.4-104)	237 (203-278)	598 (497-781)	1290 (1100-1530)	2536
	01-02	110 (99.3-122)	97.4 (87.9-107)	256 (218-287)	640 (532-778)	1220 (959-1450)	2782
	03-04	120 (107-133)	101 (90.1-117)	298 (254-332)	733 (587-853)	1350 (1080-1680)	2605
	05-06	106 (95.3-117)	92.3 (80.9-104)	242 (211-286)	625 (528-711)	1140 (942-1310)	2548
	07-08	91.1 (82.6-101)	75.3 (68.6-83.5)	204 (185-231)	547 (433-680)	987 (821-1190)	2604
	09-10	67.2 (60.5-74.7)	56.1 (48.9-66.8)	150 (128-172)	433 (373-524)	850 (709-999)	2749
Age group 6-11 years	99-00	61.1 (51.4-72.7)	52.5 (43.3-72.4)	109 (83.6-137)	225 (145-365)	412 (264-517)	328
	01-02	64.0 (54.4-75.2)	53.6 (43.7-69.4)	117 (88.8-148)	338 (191-529)	556 (338-874)	393
	03-04	66.6 (57.5-77.1)	57.4 (43.9-74.7)	119 (95.6-134)	310 (205-394)	474 (310-877)	342
	05-06	61.3 (49.6-75.8)	50.1 (42.7-61.0)	107 (76.2-145)	279 (167-441)	512 (366-1210)	356
	07-08	60.4 (53.9-67.7)	52.8 (42.4-64.2)	108 (96.3-134)	205 (166-237)	278 (228-386)	389
	09-10	45.9 (41.0-51.3)	39.0 (34.7-41.8)	73.0 (63.2-87.2)	168 (125-234)	296 (182-590)	415
12-19 years	99-00	93.7 (78.6-112)	80.7 (61.4-103)	240 (181-326)	580 (446-834)	1160 (661-1320)	752
	01-02	100 (83.0-121)	92.4 (73.1-119)	218 (164-270)	533 (389-729)	878 (573-1220)	742
	03-04	111 (93.1-132)	99.1 (81.2-121)	240 (193-320)	522 (389-714)	969 (651-1470)	729
	05-06	93.6 (80.5-109)	85.3 (69.0-104)	201 (174-238)	500 (389-635)	813 (590-1110)	702
	07-08	76.7 (61.8-95.1)	72.8 (53.3-91.3)	161 (108-218)	334 (213-491)	547 (334-866)	401
	09-10	51.4 (40.8-64.9)	46.6 (31.2-68.8)	108 (84.2-137)	236 (150-393)	419 (268-524)	420
20 years and older	99-00	118 (107-131)	102 (89.5-117)	257 (222-298)	669 (530-965)	1430 (1180-2210)	1456
	01-02	119 (108-132)	105 (96.3-120)	277 (240-321)	702 (583-871)	1400 (1010-1840)	1647
	03-04	130 (115-147)	117 (96.8-133)	338 (279-417)	815 (652-1060)	1510 (1170-2110)	1534
	05-06	115 (103-128)	100 (87.6-117)	278 (233-309)	700 (574-803)	1220 (972-1530)	1490
	07-08	97.9 (89.6-107)	78.7 (73.2-87.7)	236 (208-266)	624 (518-759)	1100 (875-1380)	1814
	09-10	73.0 (65.1-81.9)	62.5 (52.4-72.8)	173 (149-195)	523 (407-662)	989 (810-1120)	1914
Gender Males	99-00	92.8 (82.0-105)	79.0 (70.8-88.2)	214 (165-274)	661 (457-978)	1290 (965-1920)	1214
	01-02	97.6 (85.8-111)	83.2 (72.6-96.8)	232 (186-280)	729 (554-974)	1400 (980-2000)	1371
	03-04	102 (91.9-113)	83.7 (71.0-99.0)	258 (225-307)	704 (562-896)	1320 (1060-1590)	1250
	05-06	85.7 (75.4-97.4)	73.0 (61.0-90.2)	204 (172-231)	504 (368-673)	898 (607-1240)	1270
	07-08	78.1 (68.5-89.1)	65.5 (57.0-73.8)	181 (162-216)	490 (390-625)	936 (662-1190)	1294
	09-10	54.7 (48.3-62.0)	43.3 (38.2-54.2)	125 (97.7-153)	314 (262-436)	792 (570-935)	1399
Females	99-00	123 (109-139)	104 (93.7-118)	249 (203-326)	543 (460-770)	1270 (770-2250)	1322
	01-02	123 (110-139)	113 (97.4-124)	269 (235-312)	568 (470-725)	944 (784-1330)	1411
	03-04	139 (119-163)	120 (97.8-143)	335 (250-418)	741 (587-923)	1490 (951-2200)	1355
	05-06	129 (116-144)	106 (97.4-121)	293 (247-333)	759 (629-920)	1370 (1150-1730)	1278
	07-08	106 (95.5-117)	88.5 (77.6-98.6)	227 (188-278)	610 (491-727)	1040 (759-1520)	1310
	09-10	81.9 (72.7-92.2)	69.9 (57.2-80.9)	178 (151-214)	523 (407-661)	987 (716-1220)	1350

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

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Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (1999 – 2010)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	108 (93.9-125)	102 (89.8-115)	252 (207-312)	538 (444-643)	875 (643-1270)	813
	01-02	141 (120-165)	131 (108-160)	304 (261-378)	714 (568-1090)	1280 (928-1740)	677
	03-04	159 (141-179)	154 (133-178)	352 (275-439)	815 (631-1060)	1500 (1190-2070)	652
	05-06	146 (123-173)	125 (107-157)	324 (235-425)	767 (600-1020)	1410 (926-2510)	637
	07-08	119 (100-140)	105 (81.9-142)	260 (224-306)	616 (502-750)	1230 (628-2160)	531
	09-10	81.6 (70.9-93.8)	64.9 (56.3-72.7)	170 (131-254)	523 (324-792)	945 (685-1510)	566
Non-Hispanic blacks	99-00	137 (121-156)	130 (109-151)	292 (257-333)	682 (503-1120)	1270 (810-1710)	603
	01-02	163 (149-179)	150 (122-178)	367 (316-408)	818 (634-979)	1380 (1020-1850)	703
	03-04	167 (148-189)	140 (124-162)	409 (314-522)	1010 (793-1300)	1710 (1420-2310)	699
	05-06	154 (131-181)	134 (113-160)	360 (311-412)	919 (590-1290)	1700 (1070-2030)	678
	07-08	131 (115-148)	121 (105-132)	280 (224-334)	614 (489-843)	1100 (836-1780)	597
	09-10	113 (89.0-143)	92.7 (77.5-121)	236 (180-338)	722 (443-1210)	1300 (890-2240)	516
Non-Hispanic whites	99-00	98.3 (88.9-109)	84.5 (72.9-93.7)	206 (158-255)	565 (432-916)	1290 (975-1810)	908
	01-02	103 (93.5-114)	89.6 (82.1-98.9)	223 (190-265)	607 (470-765)	1050 (874-1440)	1216
	03-04	109 (95.3-125)	88.9 (79.2-105)	254 (223-320)	652 (548-876)	1270 (922-1830)	1088
	05-06	96.1 (86.5-107)	84.5 (71.2-97.6)	211 (189-242)	532 (450-686)	993 (828-1240)	1038
	07-08	82.4 (74.7-90.9)	66.4 (58.5-73.8)	185 (158-219)	523 (397-640)	871 (708-1040)	1077
	09-10	58.6 (53.2-64.4)	49.1 (41.4-56.8)	125 (110-146)	366 (278-437)	706 (515-965)	1206

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 0.66 for survey periods 1999-2008 compared with results previously released.

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Urinary Mono-ethyl phthalate (MEP) (creatinine corrected) (2011 – 2014)

Metabolite of Diethyl phthalate (DEP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	43.2 (38.5-48.5)	34.4 (30.5-39.2)	94.2 (79.5-111)	263 (198-368)	541 (398-777)	2487
	13-14	35.8 (32.6-39.4)	27.9 (24.6-31.7)	73.7 (65.2-84.6)	216 (173-260)	460 (351-606)	2684
Age group							
6-11 years	11-12	33.4 (26.7-41.6)	29.2 (23.0-36.7)	59.7 (39.8-99.6)	123 (90.0-172)	177 (144-353)	395
	13-14	31.0 (26.4-36.3)	26.8 (22.7-30.9)	49.7 (37.1-70.7)	117 (72.5-182)	255 (149-475)	409
12-19 years	11-12	35.3 (30.5-40.9)	29.4 (22.8-37.3)	61.1 (46.7-94.5)	157 (122-223)	262 (163-549)	388
	13-14	27.0 (24.7-29.5)	22.1 (20.2-25.0)	49.0 (42.4-55.9)	113 (75.9-162)	192 (139-260)	462
20 years and older	11-12	45.8 (40.4-52.0)	35.4 (32.2-42.3)	101 (86.9-124)	328 (235-405)	634 (432-1010)	1704
	13-14	38.0 (34.2-42.2)	29.6 (25.3-35.2)	84.2 (72.4-97.5)	255 (194-318)	528 (385-699)	1813
Gender							
Males	11-12	35.8 (31.7-40.4)	29.3 (25.0-33.6)	77.3 (60.9-92.4)	203 (156-293)	455 (271-703)	1258
	13-14	30.4 (26.8-34.4)	22.4 (20.4-25.7)	62.9 (48.7-73.3)	192 (140-290)	442 (295-664)	1284
Females	11-12	51.8 (44.5-60.4)	40.7 (34.0-49.9)	111 (89.2-132)	339 (249-415)	646 (436-1020)	1229
	13-14	42.0 (37.5-47.0)	33.8 (29.4-41.2)	86.5 (77.2-98.0)	230 (182-279)	468 (352-619)	1400
Race/ethnicity							
Mexican Americans	11-12	55.7 (47.0-66.1)	41.6 (34.5-52.5)	122 (85.3-164)	335 (223-549)	736 (398-1080)	316
	13-14	45.5 (39.9-51.9)	35.9 (32.6-43.8)	94.1 (76.1-129)	320 (192-523)	697 (441-880)	438
Non-Hispanic blacks	11-12	69.4 (59.9-80.4)	57.7 (49.7-67.4)	141 (124-168)	404 (274-571)	973 (609-1220)	665
	13-14	54.8 (48.7-61.7)	44.9 (38.6-52.7)	111 (91.7-132)	393 (275-519)	806 (512-1520)	609
Non-Hispanic whites	11-12	37.0 (31.9-43.0)	29.1 (25.0-33.0)	80.4 (62.3-98.6)	230 (152-346)	481 (314-704)	811
	13-14	30.0 (27.2-33.2)	23.5 (21.2-26.7)	56.5 (49.7-68.5)	153 (129-200)	344 (228-455)	987
All Hispanics	11-12	62.1 (52.3-73.8)	51.2 (42.6-57.4)	138 (101-187)	393 (257-484)	739 (398-1400)	571
	13-14	49.1 (44.2-54.5)	40.2 (35.6-46.3)	104 (81.7-121)	332 (242-487)	680 (468-914)	690
Asians	11-12	31.2 (24.6-39.7)	24.7 (18.6-32.4)	71.3 (49.0-101)	186 (94.0-527)	405 (200-886)	352
	13-14	30.1 (24.4-37.1)	24.5 (17.6-33.7)	71.8 (48.4-93.5)	162 (132-241)	418 (209-569)	288

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Urinary Mono-2-ethylhexyl phthalate (MEHP) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	3.43 (3.19-3.69)	3.20 (3.00-3.60)	7.60 (6.80-8.40)	14.9 (13.5-17.4)	23.8 (19.2-28.6)	2541
	01-02	4.27 (3.80-4.79)	4.20 (3.70-4.90)	9.80 (8.40-11.6)	23.0 (19.1-27.9)	39.2 (31.8-50.0)	2782
	03-04	2.34 (2.10-2.62)	1.90 (1.70-2.40)	5.30 (4.50-6.60)	15.1 (11.4-20.6)	31.0 (21.4-42.0)	2605
	05-06	3.04 (2.78-3.32)	2.50 (2.10-2.80)	6.30 (5.70-7.10)	17.7 (14.0-22.5)	39.7 (28.6-52.1)	2548
	07-08	2.64 (2.29-3.05)	2.20 (1.80-2.50)	5.40 (4.30-6.90)	14.1 (11.2-20.2)	27.6 (19.8-39.8)	2604
	09-10	1.59 (1.41-1.79)	1.51 (1.33-1.71)	3.52 (2.99-4.00)	7.54 (5.96-9.54)	14.1 (9.91-21.1)	2749
Age group 6-11 years	99-00	5.12 (4.42-5.92)	4.90 (3.70-6.40)	11.1 (8.30-13.6)	19.0 (13.8-36.1)	35.3 (15.6-130)	328
	01-02	4.41 (3.90-5.00)	4.40 (4.10-5.30)	9.30 (7.90-11.7)	19.7 (14.6-25.9)	31.4 (21.8-47.9)	393
	03-04	2.84 (2.10-3.84)	2.70 (1.80-4.10)	6.40 (4.40-9.60)	13.9 (7.80-27.6)	27.6 (11.3-64.7)	342
	05-06	3.10 (2.78-3.47)	3.00 (2.60-3.30)	6.20 (5.10-7.10)	14.1 (9.40-19.3)	19.7 (14.7-36.6)	356
	07-08	2.39 (2.05-2.80)	2.20 (1.70-2.90)	4.50 (3.70-6.20)	8.70 (6.40-13.9)	15.1 (10.6-24.1)	389
	09-10	1.64 (1.45-1.85)	1.71 (1.26-2.02)	3.50 (3.09-3.94)	5.95 (4.56-7.56)	8.92 (6.94-12.9)	415
12-19 years	99-00	3.75 (3.24-4.35)	3.70 (2.90-4.60)	8.10 (6.40-9.40)	15.3 (11.4-20.5)	22.8 (19.1-29.2)	752
	01-02	4.57 (3.96-5.27)	4.50 (3.70-5.10)	11.0 (9.50-14.4)	23.0 (17.7-32.7)	42.5 (25.9-57.5)	742
	03-04	2.77 (2.25-3.41)	2.50 (2.00-3.00)	6.40 (4.50-8.60)	18.6 (10.2-35.6)	40.6 (20.7-58.4)	729
	05-06	3.72 (3.04-4.56)	3.20 (2.40-4.10)	8.80 (6.20-13.3)	22.6 (13.8-43.4)	48.7 (23.1-62.9)	702
	07-08	2.99 (2.39-3.75)	2.30 (1.80-2.70)	6.00 (4.40-9.90)	21.1 (11.8-32.8)	37.6 (24.8-74.1)	401
	09-10	1.82 (1.52-2.16)	1.66 (1.42-1.94)	3.98 (3.35-4.73)	9.53 (6.27-14.0)	17.6 (9.54-27.4)	420
20 years and older	99-00	3.21 (2.94-3.51)	3.00 (2.70-3.40)	7.30 (6.40-8.00)	14.5 (12.1-17.0)	22.7 (17.5-27.0)	1461
	01-02	4.20 (3.63-4.86)	4.10 (3.50-5.00)	9.50 (8.10-11.9)	23.5 (18.0-29.8)	39.5 (30.3-57.1)	1647
	03-04	2.23 (2.03-2.44)	1.70 (1.50-2.00)	5.10 (4.50-6.00)	15.1 (10.9-19.7)	29.5 (20.4-40.0)	1534
	05-06	2.94 (2.68-3.21)	2.30 (1.90-2.70)	6.20 (5.60-6.70)	17.7 (13.6-24.5)	41.5 (28.6-54.1)	1490
	07-08	2.62 (2.27-3.02)	2.10 (1.80-2.50)	5.40 (4.20-7.10)	14.4 (11.2-20.2)	27.3 (19.2-40.6)	1814
	09-10	1.55 (1.36-1.78)	1.44 (1.25-1.68)	3.40 (2.88-4.03)	7.39 (5.94-9.58)	14.6 (9.91-21.1)	1914
Gender Males	99-00	3.68 (3.31-4.10)	3.40 (2.90-3.90)	8.00 (7.40-8.80)	16.0 (14.0-19.0)	25.3 (19.5-36.7)	1215
	01-02	4.31 (3.84-4.83)	4.30 (3.70-5.10)	9.70 (8.30-11.2)	23.0 (16.9-29.8)	37.9 (29.9-48.4)	1371
	03-04	2.56 (2.26-2.90)	2.20 (1.70-2.60)	6.00 (4.60-7.70)	17.2 (11.3-26.3)	33.3 (24.9-55.5)	1250
	05-06	3.40 (3.01-3.85)	2.80 (2.40-3.30)	7.00 (5.70-9.00)	22.6 (15.0-35.8)	49.8 (35.2-67.4)	1270
	07-08	2.77 (2.35-3.27)	2.30 (1.90-2.80)	5.50 (4.20-7.60)	14.4 (11.2-20.5)	28.9 (19.2-40.0)	1294
	09-10	1.83 (1.63-2.05)	1.77 (1.63-1.91)	3.97 (3.49-4.51)	8.63 (6.94-11.9)	18.0 (12.6-29.0)	1399
Females	99-00	3.21 (2.91-3.54)	3.10 (2.80-3.50)	7.10 (5.90-8.50)	13.6 (12.1-17.2)	21.9 (15.6-28.5)	1326
	01-02	4.23 (3.67-4.86)	4.10 (3.50-5.00)	9.80 (8.40-12.2)	23.0 (19.5-28.4)	43.5 (31.4-53.7)	1411
	03-04	2.15 (1.92-2.42)	1.80 (1.50-2.10)	4.90 (4.10-5.70)	13.2 (10.0-18.1)	27.8 (17.5-40.7)	1355
	05-06	2.72 (2.49-2.98)	2.10 (1.90-2.40)	6.00 (5.20-6.80)	13.9 (11.7-17.5)	30.8 (21.9-36.2)	1278
	07-08	2.52 (2.18-2.92)	2.00 (1.70-2.40)	5.10 (4.20-6.30)	14.1 (9.50-21.4)	26.4 (19.2-42.1)	1310
	09-10	1.39 (1.21-1.60)	1.30 (1.12-1.53)	3.00 (2.51-3.62)	6.48 (5.45-8.09)	10.3 (8.33-14.9)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.2, 1.0, 0.9, 1.2, 1.1, and 0.5 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-ethylhexyl phthalate (MEHP) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	3.49 (3.16-3.85)	3.50 (3.10-3.90)	7.00 (5.70-8.60)	13.3 (10.7-18.7)	23.9 (17.4-27.3)	814
	01-02	4.32 (3.75-4.98)	4.70 (3.80-5.70)	10.1 (8.50-11.4)	19.6 (16.6-23.0)	28.5 (24.2-39.9)	677
	03-04	2.35 (1.87-2.96)	2.20 (1.50-3.00)	5.10 (4.30-6.60)	11.2 (7.50-16.5)	18.5 (11.6-38.2)	652
	05-06	2.99 (2.50-3.57)	2.30 (1.70-3.30)	5.70 (4.70-7.60)	18.4 (12.1-30.6)	36.4 (26.2-63.8)	637
	07-08	2.89 (2.38-3.50)	2.60 (2.00-3.10)	5.30 (4.40-8.20)	16.9 (10.3-27.3)	30.2 (22.9-34.3)	531
	09-10	2.08 (1.84-2.36)	2.10 (1.86-2.40)	4.44 (3.73-5.63)	9.67 (6.89-16.0)	17.9 (13.1-24.3)	566
Non-Hispanic blacks	99-00	4.82 (3.92-5.93)	5.20 (4.10-5.80)	9.50 (7.60-11.4)	19.5 (12.9-26.5)	29.5 (18.6-60.3)	603
	01-02	6.60 (5.57-7.82)	6.70 (5.40-8.10)	15.4 (13.0-18.7)	32.9 (26.5-41.4)	52.6 (41.0-84.0)	703
	03-04	3.61 (3.07-4.23)	3.50 (3.00-4.00)	8.50 (7.10-11.4)	22.9 (16.5-28.6)	35.2 (29.3-49.1)	699
	05-06	4.09 (3.51-4.75)	3.70 (3.10-4.10)	9.10 (6.90-11.9)	22.5 (17.4-40.7)	59.3 (34.5-86.7)	678
	07-08	3.30 (2.98-3.64)	3.20 (2.70-3.60)	7.20 (6.30-8.90)	15.3 (13.3-20.2)	25.5 (19.2-38.1)	597
	09-10	2.08 (1.79-2.41)	2.05 (1.70-2.42)	4.79 (3.80-5.95)	10.1 (7.50-14.4)	16.4 (9.60-38.4)	516
Non-Hispanic whites	99-00	3.16 (2.89-3.46)	2.80 (2.50-3.10)	7.40 (6.30-8.40)	14.5 (12.2-17.4)	22.4 (16.9-28.5)	912
	01-02	3.85 (3.37-4.40)	3.70 (3.10-4.40)	8.70 (7.80-9.90)	20.9 (17.3-25.9)	37.9 (29.9-49.5)	1216
	03-04	2.14 (1.92-2.39)	1.70 (1.40-1.90)	4.80 (4.00-5.80)	13.6 (9.50-20.0)	31.0 (18.1-48.9)	1088
	05-06	2.83 (2.59-3.10)	2.20 (1.80-2.60)	5.90 (5.30-6.90)	17.0 (13.3-21.6)	36.3 (26.6-51.0)	1038
	07-08	2.44 (2.07-2.88)	2.00 (1.70-2.30)	4.90 (3.70-6.20)	13.1 (8.70-20.1)	25.0 (15.8-42.1)	1077
	09-10	1.41 (1.22-1.62)	1.30 (1.12-1.57)	3.04 (2.53-3.60)	6.12 (5.23-7.65)	11.8 (7.63-21.1)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.2, 1.0, 0.9, 1.2, 1.1, and 0.5 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-ethylhexyl phthalate (MEHP) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.36 (1.25-1.49)	1.40 (1.20-1.50)	3.00 (2.70-3.30)	6.00 (5.30-6.40)	8.70 (7.60-9.70)	2489
	13-14	*	1.10 (.900-1.20)	2.30 (2.10-2.60)	4.40 (4.00-5.00)	6.30 (5.60-7.10)	2685
Age group							
6-11 years	11-12	1.41 (1.23-1.61)	1.50 (1.20-1.80)	2.90 (2.50-3.40)	5.30 (4.10-7.10)	7.60 (6.30-8.80)	396
	13-14	1.44 (1.24-1.66)	1.20 (1.00-1.50)	2.70 (2.20-3.20)	5.20 (3.70-8.50)	8.70 (5.20-11.8)	409
12-19 years	11-12	1.58 (1.33-1.87)	1.50 (1.00-2.30)	3.90 (3.10-4.40)	6.80 (5.20-10.3)	12.5 (8.90-14.3)	388
	13-14	1.43 (1.26-1.62)	1.20 (1.00-1.40)	2.60 (2.00-3.50)	4.90 (4.20-5.80)	8.30 (5.50-10.7)	462
20 years and older	11-12	1.33 (1.19-1.48)	1.30 (1.10-1.50)	2.90 (2.50-3.20)	5.90 (5.10-6.40)	8.30 (7.10-9.60)	1705
	13-14	*	1.00 (.900-1.20)	2.30 (2.00-2.50)	4.30 (3.80-4.90)	6.10 (5.40-6.80)	1814
Gender							
Males	11-12	1.51 (1.33-1.70)	1.50 (1.20-1.80)	3.10 (2.60-3.90)	6.10 (5.50-7.00)	9.20 (7.70-11.3)	1259
	13-14	1.29 (1.17-1.41)	1.10 (1.00-1.30)	2.30 (2.00-2.70)	4.20 (3.50-5.00)	5.70 (5.10-6.60)	1285
Females	11-12	1.24 (1.14-1.34)	1.20 (1.00-1.40)	2.90 (2.50-3.10)	5.60 (4.90-6.30)	8.10 (6.80-9.20)	1230
	13-14	*	1.00 (.900-1.10)	2.40 (2.10-2.60)	4.80 (4.20-5.30)	7.00 (5.70-8.70)	1400
Race/ethnicity							
Mexican Americans	11-12	1.49 (1.16-1.91)	1.50 (1.00-1.90)	3.40 (2.50-4.30)	6.60 (5.10-8.90)	9.60 (6.60-12.9)	316
	13-14	1.55 (1.35-1.78)	1.50 (1.20-1.70)	2.90 (2.20-3.80)	5.60 (4.20-7.00)	7.40 (6.30-9.30)	438
Non-Hispanic blacks	11-12	1.89 (1.67-2.13)	2.00 (1.60-2.40)	4.00 (3.40-4.90)	8.00 (6.20-9.70)	11.3 (9.60-14.9)	665
	13-14	1.63 (1.39-1.92)	1.50 (1.10-2.00)	3.30 (2.50-4.00)	5.80 (5.10-6.70)	8.10 (6.50-10.5)	609
Non-Hispanic whites	11-12	1.21 (1.07-1.37)	1.10 (.900-1.50)	2.70 (2.20-3.10)	4.90 (4.20-6.10)	6.70 (6.00-8.30)	813
	13-14	*	.900 (.800-1.00)	2.00 (1.80-2.30)	3.90 (3.20-4.30)	5.50 (4.80-6.30)	987
All Hispanics	11-12	1.61 (1.40-1.83)	1.70 (1.30-2.00)	3.90 (3.10-4.70)	7.30 (6.30-8.70)	11.6 (9.20-12.9)	571
	13-14	1.55 (1.40-1.73)	1.50 (1.20-1.70)	2.90 (2.50-3.40)	5.20 (4.40-6.30)	7.20 (6.20-9.20)	690
Asians	11-12	1.69 (1.44-1.98)	1.70 (1.30-1.90)	3.60 (2.80-4.40)	7.80 (6.60-11.4)	13.8 (10.0-17.8)	352
	13-14	*	1.00 (<LOD-1.20)	2.10 (1.80-2.80)	4.30 (3.50-6.10)	7.90 (4.90-10.5)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.5 and 0.8, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	3.12 (2.95-3.31)	3.08 (2.82-3.27)	5.88 (5.38-6.25)	10.8 (9.62-12.5)	18.9 (15.0-21.8)	2541
	01-02	4.00 (3.58-4.48)	3.90 (3.44-4.47)	7.94 (7.22-9.02)	18.0 (15.3-21.5)	32.8 (25.2-42.9)	2782
	03-04	2.20 (2.01-2.41)	1.89 (1.68-2.19)	4.31 (3.84-4.74)	10.8 (8.72-13.8)	25.4 (16.7-34.7)	2605
	05-06	2.96 (2.72-3.23)	2.61 (2.37-2.86)	5.69 (5.00-6.47)	13.7 (11.4-17.8)	30.1 (21.2-35.2)	2548
	07-08	2.66 (2.37-2.99)	2.36 (2.11-2.67)	5.15 (4.35-6.00)	11.8 (8.89-15.6)	21.9 (14.6-33.4)	2604
	09-10	1.66 (1.45-1.90)	1.52 (1.36-1.77)	3.09 (2.69-3.60)	6.28 (4.98-8.48)	11.2 (8.33-19.1)	2749
Age group 6-11 years	99-00	5.19 (4.55-5.93)	5.37 (4.52-5.95)	9.11 (8.06-11.4)	21.6 (11.5-41.9)	41.9 (13.5-86.2)	328
	01-02	5.03 (4.47-5.65)	5.38 (4.51-6.21)	9.90 (7.87-11.5)	21.1 (13.8-28.8)	31.4 (24.3-40.7)	393
	03-04	3.00 (2.30-3.93)	2.80 (1.93-4.09)	5.86 (4.69-7.70)	14.3 (8.54-24.4)	28.7 (14.1-45.3)	342
	05-06	3.42 (3.08-3.79)	3.26 (2.63-3.92)	6.18 (5.40-6.85)	11.3 (8.96-17.4)	20.7 (11.3-31.8)	356
	07-08	2.95 (2.49-3.49)	2.80 (2.17-3.33)	5.42 (3.95-6.51)	10.6 (7.47-14.0)	15.6 (10.6-23.7)	389
	09-10	2.13 (1.90-2.40)	2.08 (1.88-2.33)	3.69 (3.13-4.20)	5.83 (4.80-7.95)	8.89 (5.88-20.1)	415
12-19 years	99-00	2.53 (2.14-2.99)	2.35 (2.05-2.76)	5.83 (4.38-6.29)	9.66 (7.41-11.5)	12.1 (10.5-17.3)	752
	01-02	3.53 (3.09-4.03)	3.67 (2.89-4.48)	7.47 (6.51-8.67)	15.2 (11.7-21.9)	25.2 (17.7-32.8)	742
	03-04	2.07 (1.74-2.48)	1.88 (1.60-2.23)	4.25 (3.19-5.62)	11.6 (6.83-23.2)	24.8 (11.6-37.9)	729
	05-06	2.77 (2.27-3.38)	2.43 (2.03-2.87)	5.24 (4.06-7.75)	15.2 (9.86-23.2)	27.1 (16.0-43.7)	702
	07-08	2.33 (1.90-2.86)	2.00 (1.67-2.57)	4.33 (3.55-6.23)	12.6 (8.31-16.3)	21.9 (12.0-45.7)	401
	09-10	1.46 (1.20-1.77)	1.33 (1.09-1.61)	2.85 (2.24-3.63)	7.47 (4.31-11.6)	13.2 (8.11-20.9)	420
20 years and older	99-00	3.03 (2.83-3.25)	2.98 (2.73-3.23)	5.55 (4.90-6.06)	10.0 (8.60-12.9)	17.5 (13.8-22.1)	1461
	01-02	3.97 (3.49-4.52)	3.82 (3.26-4.38)	7.79 (7.00-9.00)	18.3 (15.3-21.8)	34.5 (23.1-47.9)	1647
	03-04	2.14 (1.98-2.31)	1.84 (1.63-2.08)	4.14 (3.78-4.40)	10.5 (8.38-12.9)	25.6 (15.9-36.3)	1534
	05-06	2.94 (2.69-3.23)	2.60 (2.36-2.83)	5.67 (4.77-6.52)	13.8 (11.3-18.1)	33.1 (21.9-47.4)	1490
	07-08	2.69 (2.39-3.02)	2.36 (2.14-2.66)	5.20 (4.38-6.04)	11.8 (8.94-16.6)	22.1 (13.5-37.1)	1814
	09-10	1.65 (1.43-1.90)	1.51 (1.34-1.75)	3.04 (2.63-3.60)	6.24 (4.98-8.61)	11.1 (8.03-19.4)	1914
Gender Males	99-00	2.89 (2.60-3.22)	2.76 (2.52-2.96)	5.58 (4.71-6.08)	10.3 (9.35-12.4)	21.6 (14.1-27.7)	1215
	01-02	3.50 (3.08-3.99)	3.33 (2.83-3.90)	7.00 (6.49-7.77)	16.2 (12.8-20.9)	31.6 (20.5-49.4)	1371
	03-04	2.01 (1.82-2.21)	1.71 (1.46-1.89)	4.14 (3.49-4.81)	10.4 (7.68-16.2)	23.3 (15.1-41.1)	1250
	05-06	2.73 (2.43-3.07)	2.30 (2.12-2.61)	5.08 (4.29-6.14)	14.3 (11.2-20.5)	31.0 (21.5-50.9)	1270
	07-08	2.33 (2.03-2.68)	2.00 (1.71-2.34)	4.36 (3.71-5.41)	11.6 (8.33-14.2)	20.2 (14.6-26.3)	1294
	09-10	1.64 (1.45-1.85)	1.52 (1.39-1.74)	3.06 (2.70-3.60)	6.53 (5.18-9.49)	13.0 (8.65-22.2)	1399
Females	99-00	3.36 (3.11-3.63)	3.33 (2.91-3.80)	6.15 (5.55-6.77)	11.1 (9.11-14.0)	17.3 (12.4-24.6)	1326
	01-02	4.54 (4.02-5.13)	4.47 (3.85-5.14)	9.28 (7.94-10.3)	20.3 (16.6-24.4)	34.7 (27.1-42.0)	1411
	03-04	2.40 (2.15-2.69)	2.16 (1.84-2.40)	4.40 (3.97-4.89)	10.9 (8.27-16.0)	27.0 (17.5-34.6)	1355
	05-06	3.20 (2.89-3.55)	2.89 (2.58-3.17)	6.07 (5.00-7.00)	13.3 (10.4-16.3)	28.2 (18.2-37.4)	1278
	07-08	3.02 (2.70-3.38)	2.76 (2.36-3.02)	5.57 (4.90-6.50)	12.1 (8.64-18.2)	24.7 (14.8-44.4)	1310
	09-10	1.68 (1.44-1.96)	1.53 (1.35-1.89)	3.10 (2.68-3.69)	5.75 (4.58-8.03)	10.5 (7.36-17.5)	1350

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	3.16 (2.72-3.68)	3.15 (2.52-3.81)	5.88 (4.86-7.24)	11.6 (9.63-13.1)	15.7 (12.6-23.1)	814
	01-02	4.07 (3.60-4.61)	4.18 (3.82-4.90)	7.80 (6.64-9.49)	16.4 (13.6-18.9)	24.9 (19.8-28.7)	677
	03-04	2.12 (1.74-2.59)	1.94 (1.50-2.42)	4.06 (3.29-4.93)	9.38 (5.72-15.4)	16.8 (9.86-38.6)	652
	05-06	2.69 (2.36-3.07)	2.41 (2.04-2.73)	4.82 (4.09-6.05)	14.3 (10.0-16.9)	27.2 (16.3-40.1)	637
	07-08	2.82 (2.38-3.34)	2.45 (2.08-2.89)	5.00 (4.14-6.86)	12.3 (9.58-20.7)	29.0 (17.0-50.3)	531
	09-10	2.07 (1.83-2.34)	1.89 (1.69-2.31)	4.06 (3.50-4.98)	8.38 (6.08-11.3)	13.9 (9.70-20.0)	566
Non-Hispanic blacks	99-00	3.11 (2.59-3.73)	3.13 (2.50-3.61)	5.84 (4.43-7.32)	10.2 (8.05-15.6)	18.4 (11.6-35.2)	603
	01-02	4.63 (3.96-5.42)	4.59 (3.97-5.02)	9.93 (7.95-12.4)	21.2 (16.0-33.2)	39.9 (27.7-48.1)	703
	03-04	2.56 (2.24-2.92)	2.28 (2.02-2.78)	5.17 (4.48-6.83)	13.2 (10.5-16.2)	27.5 (18.4-36.0)	699
	05-06	2.87 (2.45-3.38)	2.41 (2.09-2.78)	5.72 (4.40-7.29)	15.0 (12.0-20.6)	54.4 (18.4-84.0)	678
	07-08	2.56 (2.26-2.90)	2.40 (2.17-2.73)	4.77 (4.07-5.76)	11.4 (8.75-15.4)	18.0 (16.1-26.3)	597
	09-10	1.51 (1.22-1.86)	1.48 (1.14-1.93)	2.87 (2.26-3.69)	5.73 (3.69-10.7)	10.7 (5.61-19.1)	516
Non-Hispanic whites	99-00	3.09 (2.84-3.36)	3.08 (2.73-3.47)	5.87 (5.11-6.67)	10.6 (8.95-13.5)	20.0 (14.0-24.6)	912
	01-02	3.81 (3.34-4.35)	3.67 (3.11-4.33)	7.78 (6.74-9.35)	17.0 (14.1-21.8)	32.8 (21.5-46.9)	1216
	03-04	2.12 (1.91-2.35)	1.82 (1.60-2.13)	4.11 (3.49-4.42)	10.7 (7.42-15.1)	27.0 (15.1-37.4)	1088
	05-06	2.98 (2.77-3.21)	2.66 (2.43-2.93)	5.73 (5.00-6.47)	13.4 (11.3-17.8)	27.7 (19.5-37.4)	1038
	07-08	2.55 (2.20-2.94)	2.26 (1.97-2.67)	4.90 (3.99-5.92)	11.0 (7.80-14.8)	20.5 (11.9-30.2)	1077
	09-10	1.58 (1.36-1.84)	1.49 (1.27-1.76)	2.94 (2.50-3.49)	5.64 (4.53-7.96)	10.3 (6.85-18.3)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-2-ethylhexyl phthalate (MEHP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.55 (1.43-1.68)	1.46 (1.33-1.67)	2.73 (2.50-2.92)	4.91 (4.55-5.52)	8.47 (6.72-9.86)	2487
	13-14	*	1.21 (1.11-1.33)	2.19 (2.05-2.38)	3.82 (3.46-4.15)	5.18 (4.66-5.74)	2684
Age group							
6-11 years	11-12	2.02 (1.81-2.25)	2.07 (1.75-2.44)	3.45 (2.82-4.06)	5.26 (4.60-5.89)	7.15 (5.89-8.17)	395
	13-14	1.81 (1.57-2.09)	1.76 (1.53-2.01)	3.13 (2.59-3.86)	6.33 (4.02-8.32)	8.32 (5.53-14.1)	409
12-19 years	11-12	1.53 (1.33-1.78)	1.40 (1.12-1.88)	2.79 (2.20-3.88)	5.00 (4.11-6.94)	9.86 (5.00-11.1)	388
	13-14	1.16 (1.03-1.31)	1.15 (1.00-1.27)	1.88 (1.67-2.10)	3.35 (2.38-4.07)	4.79 (3.61-6.76)	462
20 years and older	11-12	1.51 (1.39-1.64)	1.46 (1.28-1.58)	2.59 (2.38-2.84)	4.81 (4.35-5.51)	8.49 (6.18-11.2)	1704
	13-14	*	1.19 (1.08-1.31)	2.19 (1.98-2.41)	3.70 (3.25-4.09)	5.00 (4.34-5.40)	1813
Gender							
Males	11-12	1.41 (1.28-1.56)	1.36 (1.19-1.58)	2.52 (2.21-2.83)	4.58 (3.77-5.46)	7.19 (6.16-8.79)	1258
	13-14	1.08 (.984-1.19)	1.03 (.950-1.12)	1.78 (1.58-2.00)	3.17 (2.73-3.60)	4.30 (3.94-5.06)	1284
Females	11-12	1.70 (1.56-1.85)	1.58 (1.43-1.75)	2.86 (2.63-3.18)	5.36 (4.64-5.89)	8.89 (6.67-13.2)	1229
	13-14	*	1.48 (1.33-1.64)	2.59 (2.36-2.96)	4.29 (3.70-5.00)	5.74 (5.12-7.70)	1400
Race/ethnicity							
Mexican Americans	11-12	1.68 (1.36-2.06)	1.67 (1.21-2.06)	2.91 (2.46-3.50)	6.23 (4.32-9.05)	11.3 (5.67-18.3)	316
	13-14	1.58 (1.35-1.85)	1.48 (1.24-1.83)	2.85 (2.46-3.39)	4.62 (4.07-5.56)	7.13 (5.53-8.04)	438
Non-Hispanic blacks	11-12	1.47 (1.29-1.67)	1.44 (1.26-1.75)	2.75 (2.37-3.14)	5.16 (4.17-7.05)	8.69 (6.07-12.1)	665
	13-14	1.20 (1.07-1.36)	1.13 (.957-1.39)	2.11 (1.85-2.44)	3.46 (2.96-4.07)	5.05 (3.74-6.31)	609
Non-Hispanic whites	11-12	1.47 (1.29-1.68)	1.45 (1.25-1.65)	2.51 (2.17-2.84)	4.43 (3.77-5.00)	6.77 (5.00-9.54)	811
	13-14	*	1.16 (1.02-1.31)	2.11 (1.84-2.33)	3.56 (3.00-4.10)	4.68 (4.19-5.62)	987
All Hispanics	11-12	1.80 (1.63-1.98)	1.79 (1.59-2.00)	3.32 (2.86-3.76)	6.37 (5.67-8.07)	11.3 (7.79-14.4)	571
	13-14	1.54 (1.38-1.73)	1.43 (1.22-1.67)	2.80 (2.48-3.10)	4.39 (3.98-5.09)	6.61 (5.53-7.64)	690
Asians	11-12	2.26 (1.98-2.58)	1.98 (1.71-2.33)	4.18 (3.26-5.00)	8.89 (6.40-12.6)	14.0 (10.0-20.1)	352
	13-14	*	1.43 (<LOD-1.70)	2.76 (2.31-3.13)	5.00 (3.96-5.87)	6.85 (5.17-9.73)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	20.0 (17.8-22.5)	20.1 (17.8-22.4)	43.6 (38.0-49.7)	92.3 (77.0-108)	192 (131-256)	2782
	03-04	21.7 (19.3-24.4)	21.2 (18.7-24.1)	49.1 (40.5-56.9)	121 (91.3-164)	266 (165-383)	2605
	05-06	25.5 (23.0-28.2)	23.8 (21.5-26.8)	55.1 (50.2-61.0)	153 (132-180)	306 (240-421)	2548
	07-08	22.1 (18.7-26.0)	20.7 (17.6-23.7)	48.2 (39.8-61.8)	123 (83.7-181)	238 (171-336)	2604
	09-10	12.9 (11.3-14.7)	12.9 (11.4-14.8)	25.8 (22.1-30.3)	53.2 (41.7-75.2)	103 (74.2-149)	2749
Age group 6-11 years	01-02	33.6 (29.7-37.9)	32.9 (26.9-39.1)	66.9 (49.7-74.0)	127 (103-148)	216 (137-280)	393
	03-04	36.9 (28.4-47.9)	36.5 (26.5-47.0)	77.4 (49.1-103)	164 (79.9-350)	318 (164-400)	342
	05-06	34.9 (30.8-39.6)	35.7 (31.3-40.7)	68.9 (56.5-76.0)	140 (101-169)	206 (133-401)	356
	07-08	28.6 (23.4-34.8)	27.0 (20.1-36.4)	56.1 (45.4-67.8)	113 (76.5-218)	242 (109-351)	389
	09-10	15.0 (13.2-17.1)	17.0 (14.1-19.8)	28.9 (24.4-37.4)	49.3 (41.2-70.2)	75.1 (55.2-117)	415
12-19 years	01-02	24.9 (21.3-29.1)	25.3 (22.9-31.3)	50.6 (40.7-64.5)	107 (78.5-148)	216 (117-330)	742
	03-04	28.3 (23.0-34.8)	29.8 (25.9-33.9)	56.9 (45.4-73.7)	157 (84.1-299)	317 (176-553)	729
	05-06	34.8 (28.0-43.3)	32.5 (27.1-42.2)	79.5 (66.9-103)	213 (131-384)	424 (232-836)	702
	07-08	29.8 (22.5-39.3)	26.6 (20.0-35.4)	66.7 (43.7-96.6)	224 (101-417)	417 (209-615)	401
	09-10	15.3 (12.4-18.8)	14.9 (12.0-18.0)	28.8 (22.7-41.0)	70.2 (41.0-110)	117 (61.0-215)	420
20 years and older	01-02	18.1 (15.7-20.9)	17.8 (14.7-20.7)	39.8 (32.7-48.0)	86.2 (65.7-107)	175 (110-279)	1647
	03-04	19.5 (17.7-21.5)	18.4 (16.6-21.0)	41.9 (36.9-51.2)	107 (88.2-136)	225 (148-384)	1534
	05-06	23.4 (21.1-25.9)	21.4 (19.5-23.7)	48.6 (43.7-55.1)	148 (121-172)	306 (238-421)	1490
	07-08	20.5 (17.4-24.1)	19.6 (17.1-22.2)	46.3 (37.2-59.9)	110 (75.0-169)	214 (157-303)	1814
	09-10	12.4 (10.7-14.3)	12.5 (10.8-14.3)	24.5 (21.1-29.3)	52.5 (40.1-72.6)	104 (72.6-151)	1914
Gender Males	01-02	22.0 (19.5-24.7)	21.2 (19.4-24.2)	48.0 (41.4-54.4)	94.2 (80.8-110)	212 (130-256)	1371
	03-04	24.1 (20.9-27.9)	22.9 (19.2-27.9)	51.0 (40.5-59.8)	133 (94.8-220)	317 (162-470)	1250
	05-06	29.6 (26.0-33.8)	27.2 (22.9-31.0)	63.1 (54.3-71.9)	180 (143-263)	494 (285-626)	1270
	07-08	23.2 (19.4-27.8)	20.8 (18.1-24.5)	46.0 (39.2-57.3)	132 (85.4-190)	277 (162-349)	1294
	09-10	15.2 (13.1-17.6)	14.6 (12.9-16.4)	29.5 (24.6-36.2)	71.0 (50.3-93.5)	128 (90.6-181)	1399
Females	01-02	18.3 (15.7-21.4)	18.2 (14.9-22.1)	39.8 (34.3-46.0)	86.0 (69.4-115)	170 (119-273)	1411
	03-04	19.7 (17.4-22.2)	19.4 (16.7-22.8)	46.4 (37.5-54.4)	103 (84.1-148)	214 (140-318)	1355
	05-06	22.0 (19.2-25.2)	21.4 (19.5-23.4)	47.1 (42.6-54.3)	135 (113-156)	232 (186-300)	1278
	07-08	21.0 (17.8-24.8)	19.9 (16.8-23.3)	51.0 (39.9-64.6)	121 (76.9-183)	223 (171-336)	1310
	09-10	11.0 (9.58-12.8)	11.6 (9.73-13.5)	22.5 (19.2-27.2)	42.8 (33.2-59.1)	82.2 (53.1-116)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.7, 0.7, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	18.5 (16.2-21.1)	19.1 (16.3-21.6)	36.3 (31.6-44.0)	79.9 (66.4-93.9)	123 (100-161)	677
	03-04	18.9 (15.4-23.4)	19.8 (17.6-22.3)	37.5 (30.0-45.6)	72.2 (52.4-115)	116 (71.6-327)	652
	05-06	23.0 (18.0-29.3)	19.9 (15.7-23.9)	47.8 (34.8-65.3)	136 (84.6-223)	244 (157-520)	637
	07-08	22.7 (18.5-27.7)	19.8 (17.5-23.8)	43.6 (33.5-66.6)	104 (82.8-157)	238 (158-282)	531
	09-10	15.3 (12.9-18.2)	15.8 (13.3-18.3)	31.5 (26.6-39.2)	64.5 (46.4-94.9)	108 (70.7-153)	566
Non-Hispanic blacks	01-02	29.8 (26.1-34.1)	30.9 (27.2-34.3)	61.9 (52.6-69.4)	126 (108-157)	276 (157-339)	703
	03-04	30.8 (26.8-35.5)	29.1 (25.3-32.3)	65.6 (53.7-76.3)	154 (113-178)	275 (174-401)	699
	05-06	34.8 (30.3-39.9)	30.2 (27.6-33.2)	73.8 (61.0-96.7)	206 (156-275)	395 (274-547)	678
	07-08	25.7 (23.1-28.6)	25.8 (22.4-28.9)	55.9 (47.1-64.7)	121 (99.1-150)	184 (137-255)	597
	09-10	15.5 (12.8-18.8)	15.7 (13.4-17.7)	30.4 (24.4-35.7)	54.5 (37.7-84.1)	94.6 (51.5-229)	516
Non-Hispanic whites	01-02	19.1 (16.7-21.9)	19.2 (16.9-21.4)	41.7 (35.3-50.7)	91.1 (75.6-110)	212 (130-275)	1216
	03-04	20.8 (18.6-23.3)	19.7 (17.2-22.5)	47.5 (39.4-56.1)	120 (91.3-165)	270 (155-403)	1088
	05-06	24.3 (21.9-26.9)	23.0 (21.1-26.0)	54.6 (48.4-61.0)	148 (121-172)	302 (221-421)	1038
	07-08	21.3 (17.6-25.8)	20.2 (16.5-24.1)	46.7 (36.1-65.2)	123 (75.1-203)	277 (161-373)	1077
	09-10	12.2 (10.5-14.1)	12.3 (10.5-14.2)	24.4 (20.7-29.1)	51.7 (37.7-77.1)	104 (72.6-151)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.0, 0.3, 0.7, 0.7, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	7.91 (7.47-8.36)	8.30 (7.50-9.00)	16.0 (14.4-17.4)	29.0 (25.8-32.5)	43.1 (40.6-47.2)	2489
	13-14	6.47 (5.98-7.00)	6.90 (6.30-7.70)	13.2 (11.9-14.7)	23.7 (20.7-26.6)	33.7 (28.2-37.6)	2685
Age group							
6-11 years	11-12	10.5 (8.82-12.4)	11.8 (10.4-14.2)	23.3 (19.9-26.1)	39.5 (30.6-50.3)	55.4 (41.8-68.5)	396
	13-14	9.54 (7.94-11.5)	9.40 (7.50-12.8)	18.7 (16.2-23.0)	36.4 (26.5-44.8)	50.8 (37.3-76.5)	409
12-19 years	11-12	8.55 (6.93-10.6)	8.80 (6.80-10.6)	18.3 (14.3-23.2)	36.0 (27.4-46.6)	56.7 (38.1-99.8)	388
	13-14	7.62 (6.43-9.04)	7.70 (6.20-10.3)	15.8 (12.3-19.3)	26.8 (21.9-32.5)	35.3 (27.6-59.5)	462
20 years and older	11-12	7.58 (7.03-8.16)	8.00 (7.20-8.90)	15.0 (13.5-16.9)	26.7 (23.8-30.6)	41.5 (34.7-46.2)	1705
	13-14	6.06 (5.63-6.51)	6.70 (5.70-7.30)	12.3 (11.3-13.4)	22.3 (19.6-24.0)	30.3 (26.5-35.9)	1814
Gender							
Males	11-12	8.71 (7.98-9.51)	9.40 (7.80-10.6)	16.4 (14.2-19.5)	31.1 (26.7-35.8)	46.2 (41.5-55.4)	1259
	13-14	6.98 (6.32-7.71)	7.40 (6.70-8.40)	13.1 (11.7-14.8)	22.7 (20.1-24.9)	32.9 (27.3-36.0)	1285
Females	11-12	7.20 (6.77-7.66)	7.60 (6.90-8.20)	15.5 (14.4-17.1)	27.6 (25.0-30.5)	40.7 (35.1-46.4)	1230
	13-14	6.02 (5.40-6.72)	6.30 (5.30-7.20)	13.4 (11.5-15.3)	24.8 (20.7-27.8)	35.3 (27.4-40.8)	1400
Race/ethnicity							
Mexican Americans	11-12	9.13 (7.22-11.5)	9.60 (7.30-11.7)	17.7 (12.7-24.7)	32.1 (24.8-37.7)	50.2 (36.4-56.3)	316
	13-14	7.71 (6.53-9.10)	8.00 (7.40-8.80)	14.4 (12.5-16.2)	28.1 (18.9-42.0)	43.7 (31.8-50.3)	438
Non-Hispanic blacks	11-12	11.3 (10.1-12.7)	11.2 (10.2-12.7)	22.1 (17.4-26.8)	38.8 (34.9-47.9)	56.2 (46.8-65.1)	665
	13-14	8.06 (6.79-9.56)	8.80 (7.30-10.4)	16.5 (14.0-18.6)	27.4 (22.8-32.7)	38.7 (32.7-48.1)	609
Non-Hispanic whites	11-12	7.20 (6.73-7.70)	7.40 (6.80-8.30)	14.6 (12.9-17.2)	25.0 (23.4-27.9)	36.6 (30.6-42.9)	813
	13-14	6.05 (5.54-6.61)	6.70 (5.60-7.20)	12.6 (10.8-14.2)	22.4 (19.1-24.6)	30.1 (26.3-35.3)	987
All Hispanics	11-12	9.28 (8.07-10.7)	9.40 (7.70-10.8)	18.8 (15.3-22.9)	37.5 (32.1-43.9)	53.8 (46.3-70.6)	571
	13-14	7.56 (6.92-8.26)	8.00 (7.40-8.60)	14.4 (13.1-15.5)	27.2 (21.3-37.3)	39.3 (35.1-46.4)	690
Asians	11-12	6.85 (5.53-8.48)	6.70 (5.40-7.90)	15.1 (11.5-18.6)	31.8 (22.5-41.9)	64.2 (35.7-82.8)	352
	13-14	4.78 (4.07-5.61)	4.50 (3.70-5.60)	10.2 (8.30-12.4)	17.1 (14.6-21.8)	26.7 (17.9-47.0)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.4, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	18.8 (17.0-20.7)	16.6 (14.9-18.5)	32.2 (27.8-37.1)	71.1 (58.7-88.3)	143 (101-200)	2782
	03-04	20.4 (18.7-22.3)	17.7 (16.3-19.6)	35.8 (30.5-43.3)	93.5 (74.0-128)	182 (134-262)	2605
	05-06	24.8 (22.4-27.5)	21.4 (19.1-23.4)	46.1 (40.0-52.1)	117 (97.8-148)	235 (197-272)	2548
	07-08	22.2 (19.4-25.5)	19.3 (17.4-22.1)	40.5 (34.1-50.3)	99.3 (69.7-134)	179 (135-252)	2604
	09-10	13.5 (11.6-15.6)	11.9 (10.5-13.9)	22.3 (18.6-26.4)	44.0 (35.3-61.0)	86.3 (59.2-131)	2749
Age group 6-11 years	01-02	38.2 (34.3-42.6)	34.3 (29.9-38.9)	60.6 (51.9-76.4)	107 (96.3-147)	211 (122-313)	393
	03-04	39.0 (31.1-48.9)	36.6 (25.3-49.3)	65.6 (49.8-91.3)	129 (77.1-253)	211 (123-708)	342
	05-06	38.5 (34.2-43.3)	37.0 (32.9-40.3)	65.5 (55.4-71.9)	115 (85.1-165)	213 (119-333)	356
	07-08	35.2 (29.1-42.5)	31.4 (25.6-37.8)	53.5 (44.8-72.3)	139 (79.9-230)	258 (141-303)	389
	09-10	19.6 (17.3-22.2)	18.6 (16.5-21.5)	34.2 (27.3-40.4)	55.4 (44.0-64.8)	72.1 (56.3-140)	415
12-19 years	01-02	19.2 (17.0-21.8)	17.8 (15.6-20.0)	34.9 (29.2-42.7)	73.4 (58.4-80.7)	102 (86.6-160)	742
	03-04	21.2 (18.1-24.7)	18.6 (16.9-21.7)	38.7 (29.7-53.4)	103 (62.7-209)	212 (100-358)	729
	05-06	26.0 (21.2-31.7)	23.7 (18.8-28.4)	49.4 (37.4-74.0)	131 (79.0-228)	278 (132-375)	702
	07-08	23.2 (18.1-29.6)	20.0 (14.6-23.9)	46.1 (31.5-66.3)	148 (66.6-234)	234 (146-373)	401
	09-10	12.3 (9.73-15.5)	10.5 (8.95-13.3)	20.9 (14.2-31.0)	45.3 (28.9-91.9)	110 (44.6-200)	420
20 years and older	01-02	17.1 (15.2-19.3)	15.0 (13.3-16.7)	27.7 (23.2-34.0)	63.7 (48.3-86.9)	137 (84.4-203)	1647
	03-04	18.8 (17.5-20.2)	16.3 (15.4-17.5)	31.6 (28.1-35.3)	83.8 (67.2-106)	171 (129-246)	1534
	05-06	23.4 (21.1-26.0)	19.4 (17.6-21.8)	42.5 (37.6-49.2)	115 (93.1-153)	235 (184-298)	1490
	07-08	21.0 (18.5-24.0)	18.5 (16.3-20.2)	38.1 (30.9-49.2)	94.3 (62.6-126)	164 (120-235)	1814
	09-10	13.1 (11.3-15.2)	11.5 (10.1-13.4)	20.9 (17.7-25.1)	40.6 (32.4-64.9)	86.3 (59.2-131)	1914
Gender Males	01-02	17.9 (16.2-19.7)	15.4 (13.8-17.9)	32.2 (27.8-36.8)	73.4 (55.3-91.8)	137 (97.7-224)	1371
	03-04	18.9 (17.1-20.9)	17.1 (15.2-18.6)	32.7 (26.6-41.6)	93.4 (68.8-123)	193 (108-291)	1250
	05-06	23.8 (21.0-26.9)	20.2 (17.5-23.3)	44.8 (38.5-54.1)	129 (92.5-166)	251 (202-352)	1270
	07-08	19.6 (16.8-22.7)	16.8 (14.6-20.0)	34.8 (28.7-41.8)	90.3 (65.2-119)	164 (111-258)	1294
	09-10	13.6 (11.7-15.9)	11.6 (10.5-13.1)	22.9 (17.8-27.4)	52.8 (39.1-74.3)	103 (73.3-173)	1399
Females	01-02	19.7 (17.3-22.4)	17.6 (15.4-19.5)	32.1 (26.8-38.6)	70.5 (57.8-93.7)	156 (93.7-201)	1411
	03-04	21.9 (19.7-24.5)	18.7 (16.8-20.9)	39.3 (33.8-46.9)	94.3 (72.8-136)	171 (146-261)	1355
	05-06	25.9 (23.2-28.8)	22.5 (19.6-25.5)	47.3 (40.5-52.3)	108 (88.8-131)	202 (157-278)	1278
	07-08	25.2 (22.1-28.6)	22.1 (19.6-24.4)	47.4 (38.5-56.1)	112 (84.6-150)	190 (162-268)	1310
	09-10	13.3 (11.4-15.6)	12.4 (10.4-14.6)	21.9 (18.3-26.7)	38.8 (30.9-52.2)	74.0 (46.9-115)	1350

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	17.4 (15.9-19.1)	15.7 (14.4-17.5)	30.6 (26.0-34.7)	65.9 (50.6-83.9)	103 (75.5-128)	677
	03-04	17.1 (14.3-20.4)	15.4 (13.2-17.7)	29.3 (23.8-36.8)	57.3 (45.7-97.6)	105 (70.1-195)	652
	05-06	20.7 (17.2-25.0)	17.5 (15.3-21.3)	37.3 (30.9-45.7)	99.9 (67.6-159)	181 (110-357)	637
	07-08	22.1 (17.7-27.7)	18.8 (15.2-23.4)	38.6 (28.3-54.9)	91.4 (61.0-170)	197 (141-282)	531
	09-10	15.2 (12.9-17.8)	14.6 (12.8-16.2)	27.0 (21.3-33.3)	60.0 (42.3-77.7)	94.8 (66.4-142)	566
Non-Hispanic blacks	01-02	20.9 (18.8-23.3)	19.7 (17.5-21.8)	38.3 (32.1-46.0)	93.5 (69.2-123)	164 (130-183)	703
	03-04	21.9 (20.1-23.8)	19.5 (17.3-22.6)	40.1 (35.8-45.3)	102 (75.5-122)	164 (133-269)	699
	05-06	24.5 (21.2-28.2)	18.9 (17.1-22.8)	46.1 (37.9-59.7)	128 (100-158)	308 (158-399)	678
	07-08	20.0 (18.1-22.0)	18.3 (16.5-19.2)	36.9 (27.9-46.7)	85.5 (65.8-103)	136 (107-227)	597
	09-10	11.2 (8.71-14.5)	10.5 (8.26-13.5)	18.9 (13.6-25.3)	32.9 (22.3-58.4)	47.2 (33.6-153)	516
Non-Hispanic whites	01-02	18.9 (17.0-21.0)	16.3 (14.8-18.4)	32.1 (27.3-37.3)	70.8 (56.9-93.7)	177 (98.0-242)	1216
	03-04	20.5 (18.5-22.8)	17.8 (16.2-19.7)	35.3 (29.7-44.9)	96.2 (75.8-136)	211 (136-283)	1088
	05-06	25.6 (23.1-28.2)	22.4 (19.6-24.5)	47.6 (40.7-54.1)	119 (98.2-148)	231 (181-297)	1038
	07-08	22.2 (18.7-26.3)	19.5 (16.7-23.0)	40.4 (32.1-54.8)	99.1 (68.1-145)	179 (129-258)	1077
	09-10	13.7 (11.7-16.1)	11.9 (10.4-13.9)	22.4 (18.0-27.6)	43.0 (34.2-61.0)	84.1 (54.7-142)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	8.99 (8.55-9.46)	8.46 (7.90-9.27)	14.1 (13.5-14.9)	25.3 (23.1-27.8)	37.7 (32.9-45.3)	2487
	13-14	6.49 (5.97-7.05)	6.15 (5.67-6.86)	10.5 (9.47-11.7)	18.1 (15.4-20.4)	25.8 (22.9-29.3)	2684
Age group							
6-11 years	11-12	14.9 (12.9-17.2)	14.8 (13.0-18.2)	26.5 (22.9-28.2)	42.6 (30.9-46.5)	58.1 (43.2-75.1)	395
	13-14	12.0 (10.4-14.0)	11.6 (9.32-14.4)	19.3 (17.2-24.2)	36.9 (24.6-61.7)	61.7 (34.3-130)	409
12-19 years	11-12	8.33 (7.38-9.41)	7.60 (6.41-8.29)	12.6 (10.4-15.5)	28.7 (20.1-37.2)	53.9 (31.7-68.8)	388
	13-14	6.19 (5.36-7.14)	5.94 (5.00-7.14)	9.82 (8.59-11.5)	16.9 (13.0-21.1)	24.8 (19.9-31.1)	462
20 years and older	11-12	8.61 (8.17-9.07)	8.20 (7.63-8.94)	13.5 (12.6-14.1)	22.5 (20.1-25.3)	32.0 (28.1-39.3)	1704
	13-14	6.10 (5.62-6.63)	5.93 (5.40-6.41)	9.81 (8.89-10.8)	15.4 (14.1-18.3)	22.2 (19.2-26.0)	1813
Gender							
Males	11-12	8.15 (7.67-8.66)	7.80 (7.18-8.21)	12.2 (11.5-13.2)	24.2 (20.9-25.9)	37.2 (29.5-50.2)	1258
	13-14	5.86 (5.38-6.39)	5.68 (5.26-6.12)	8.97 (8.48-9.79)	15.2 (13.9-16.7)	22.3 (19.8-26.3)	1284
Females	11-12	9.89 (9.16-10.7)	9.64 (8.33-11.1)	15.6 (14.7-17.3)	27.0 (23.9-28.8)	37.7 (33.2-44.4)	1229
	13-14	7.15 (6.38-8.01)	6.94 (6.25-7.58)	12.0 (10.3-13.7)	20.4 (16.4-23.6)	28.3 (22.9-36.4)	1400
Race/ethnicity							
Mexican Americans	11-12	10.3 (8.35-12.7)	9.10 (7.02-12.5)	18.6 (14.4-21.1)	30.4 (25.1-36.0)	49.6 (30.4-114)	316
	13-14	7.86 (7.13-8.66)	7.54 (6.78-8.10)	12.6 (10.8-16.5)	23.5 (19.6-32.1)	37.2 (25.8-54.9)	438
Non-Hispanic blacks	11-12	8.80 (7.84-9.87)	8.12 (7.37-8.96)	14.7 (12.4-17.8)	28.2 (20.7-37.4)	46.2 (29.7-57.5)	665
	13-14	5.94 (5.28-6.70)	5.68 (4.84-6.85)	9.94 (9.02-11.4)	17.1 (15.0-20.1)	23.9 (19.2-32.4)	609
Non-Hispanic whites	11-12	8.74 (8.02-9.53)	8.36 (7.62-9.58)	13.5 (12.5-14.5)	23.1 (19.7-25.9)	32.7 (27.8-42.9)	811
	13-14	6.37 (5.74-7.07)	6.06 (5.56-6.74)	10.0 (8.72-11.6)	16.2 (14.2-20.0)	23.1 (20.8-27.7)	987
All Hispanics	11-12	10.4 (9.42-11.5)	9.29 (8.14-10.5)	18.7 (16.7-21.1)	30.5 (27.1-35.6)	49.6 (33.4-67.9)	571
	13-14	7.50 (7.04-8.00)	7.19 (6.58-7.77)	12.3 (11.1-14.1)	22.3 (19.0-27.0)	34.9 (27.1-40.6)	690
Asians	11-12	9.18 (7.54-11.2)	8.45 (7.34-10.0)	16.2 (12.7-21.0)	33.0 (23.6-42.6)	57.4 (35.8-85.4)	352
	13-14	6.06 (5.35-6.86)	5.63 (4.83-6.50)	11.0 (9.79-13.2)	19.6 (16.0-24.5)	26.3 (19.6-41.9)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	13.5 (12.0-15.0)	14.0 (12.5-15.1)	29.6 (25.2-34.0)	59.9 (50.4-70.9)	120 (87.2-156)	2782
	03-04	14.5 (13.0-16.1)	14.4 (12.4-16.7)	31.4 (27.4-36.6)	76.7 (59.4-102)	157 (106-232)	2605
	05-06	16.2 (14.6-18.0)	15.1 (13.5-17.1)	35.5 (32.1-40.3)	94.8 (78.5-112)	183 (147-250)	2548
	07-08	12.2 (10.3-14.3)	11.3 (10.0-13.3)	27.1 (21.8-33.8)	64.2 (47.3-93.6)	130 (93.6-177)	2604
	09-10	8.02 (7.11-9.06)	8.02 (7.27-9.04)	16.1 (13.8-19.0)	32.5 (25.2-41.8)	55.7 (41.8-80.9)	2749
Age group 6-11 years	01-02	23.3 (20.9-26.1)	22.9 (18.5-28.1)	46.5 (38.1-52.0)	81.6 (64.7-109)	142 (93.9-178)	393
	03-04	25.1 (19.6-32.3)	25.8 (19.3-31.4)	51.1 (32.1-76.5)	97.9 (58.8-197)	197 (97.6-261)	342
	05-06	23.0 (20.3-26.1)	24.5 (19.9-27.6)	44.3 (38.1-52.3)	83.8 (63.6-115)	126 (77.3-253)	356
	07-08	16.9 (13.9-20.6)	16.6 (12.4-22.6)	34.5 (26.2-40.9)	64.4 (46.9-129)	137 (63.8-179)	389
	09-10	9.78 (8.72-11.0)	11.1 (8.87-12.7)	20.0 (17.1-21.6)	35.4 (24.8-41.4)	48.4 (36.0-74.0)	415
12-19 years	01-02	17.5 (15.1-20.3)	18.6 (16.2-20.7)	35.0 (27.7-42.1)	70.7 (52.2-104)	118 (74.0-174)	742
	03-04	19.5 (16.0-23.7)	20.3 (18.4-23.5)	37.8 (32.6-44.6)	110 (54.6-168)	212 (103-326)	729
	05-06	23.0 (18.7-28.4)	22.1 (18.0-26.2)	50.7 (42.7-62.2)	134 (82.3-240)	263 (134-511)	702
	07-08	16.9 (12.8-22.3)	15.9 (11.9-19.3)	38.2 (24.0-55.5)	121 (58.1-258)	258 (120-354)	401
	09-10	10.0 (8.32-12.1)	9.82 (7.96-12.3)	19.0 (15.9-23.5)	40.0 (26.7-61.5)	68.4 (32.6-154)	420
20 years and older	01-02	12.0 (10.5-13.9)	12.3 (10.4-14.1)	26.0 (21.6-32.1)	52.3 (41.8-68.3)	116 (74.9-160)	1647
	03-04	12.9 (11.8-14.1)	12.4 (10.9-14.5)	27.0 (25.0-30.9)	68.9 (55.0-86.5)	139 (92.7-216)	1534
	05-06	14.7 (13.2-16.4)	13.4 (12.2-15.1)	31.9 (28.2-36.2)	91.6 (74.6-104)	182 (138-247)	1490
	07-08	11.1 (9.48-13.1)	10.7 (9.30-12.3)	25.5 (20.2-31.4)	59.8 (42.3-88.9)	108 (80.0-155)	1814
	09-10	7.59 (6.64-8.68)	7.55 (6.69-8.58)	15.3 (12.6-18.6)	30.6 (24.1-41.5)	54.9 (41.8-81.0)	1914
Gender Males	01-02	14.5 (13.0-16.2)	14.6 (13.1-16.2)	31.6 (25.6-34.7)	60.4 (52.3-71.4)	129 (84.4-167)	1371
	03-04	15.6 (13.6-17.9)	14.7 (12.7-18.1)	31.8 (27.2-39.5)	83.8 (59.4-134)	185 (96.2-277)	1250
	05-06	18.3 (16.0-20.9)	16.3 (14.7-19.7)	39.3 (33.4-48.1)	104 (80.7-140)	258 (180-337)	1270
	07-08	12.5 (10.5-15.0)	11.3 (9.80-13.4)	26.1 (21.8-32.2)	61.8 (46.8-98.1)	139 (83.7-189)	1294
	09-10	9.14 (8.01-10.4)	8.76 (7.87-9.88)	18.2 (14.8-21.0)	39.3 (27.5-50.9)	69.6 (50.0-109)	1399
Females	01-02	12.5 (10.8-14.6)	13.1 (11.2-15.0)	28.1 (23.7-33.5)	57.5 (45.8-72.7)	115 (81.8-147)	1411
	03-04	13.4 (11.9-15.1)	13.7 (11.4-16.4)	29.5 (26.1-36.6)	68.6 (53.7-88.1)	143 (88.2-210)	1355
	05-06	14.4 (12.6-16.5)	13.8 (12.5-15.7)	32.5 (29.3-36.4)	81.7 (68.6-104)	159 (114-182)	1278
	07-08	11.8 (10.0-14.0)	11.7 (9.80-13.5)	27.9 (21.3-37.5)	64.2 (43.9-93.6)	122 (92.0-191)	1310
	09-10	7.09 (6.17-8.14)	7.35 (6.13-8.67)	15.2 (12.1-17.5)	27.1 (21.6-36.9)	48.2 (31.3-67.1)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.1, 0.5, 0.7, 0.6, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	13.1 (11.6-14.9)	13.4 (11.6-15.0)	25.5 (21.6-30.8)	56.6 (40.6-70.3)	77.3 (70.5-101)	677
	03-04	12.8 (10.5-15.5)	13.6 (11.4-15.6)	25.3 (20.4-29.9)	46.6 (32.3-70.8)	76.0 (51.6-153)	652
	05-06	14.8 (11.7-18.8)	12.8 (10.5-16.1)	30.9 (22.6-42.9)	79.1 (51.7-131)	152 (92.9-276)	637
	07-08	12.6 (10.5-15.1)	11.4 (10.4-12.9)	25.1 (18.7-37.2)	53.4 (43.2-91.7)	118 (88.4-147)	531
	09-10	9.57 (8.10-11.3)	9.65 (8.17-11.3)	19.2 (16.3-23.3)	39.0 (30.9-54.7)	64.6 (43.0-95.3)	566
Non-Hispanic blacks	01-02	19.6 (17.1-22.5)	20.1 (17.9-22.4)	39.0 (34.8-44.2)	80.5 (71.4-97.4)	153 (102-228)	703
	03-04	20.2 (17.7-23.0)	20.1 (17.0-22.5)	40.0 (33.9-46.9)	92.6 (68.8-130)	173 (104-247)	699
	05-06	21.8 (18.9-25.2)	18.8 (16.8-21.0)	46.0 (38.0-59.1)	130 (104-168)	243 (159-304)	678
	07-08	14.2 (12.7-15.9)	14.0 (12.7-16.3)	30.5 (25.8-35.9)	64.2 (52.1-76.1)	110 (71.9-136)	597
	09-10	9.57 (8.17-11.2)	9.64 (8.15-11.1)	19.8 (16.5-22.1)	31.4 (25.5-44.0)	50.9 (31.4-129)	516
Non-Hispanic whites	01-02	12.8 (11.2-14.6)	13.2 (11.6-14.6)	28.5 (23.6-34.0)	58.6 (48.8-70.9)	126 (83.7-172)	1216
	03-04	13.8 (12.4-15.4)	13.4 (11.3-16.3)	31.0 (27.0-36.3)	77.6 (59.4-102)	161 (98.7-241)	1088
	05-06	15.5 (13.9-17.3)	15.0 (13.3-16.5)	35.3 (30.1-40.8)	92.6 (74.6-111)	182 (134-247)	1038
	07-08	11.7 (9.66-14.2)	11.0 (9.20-13.6)	26.9 (20.2-35.1)	64.2 (43.4-108)	137 (90.0-197)	1077
	09-10	7.59 (6.60-8.73)	7.55 (6.81-8.63)	15.7 (12.9-18.6)	29.1 (22.9-46.5)	55.7 (41.5-83.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.1, 0.5, 0.7, 0.6, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.08 (4.78-5.41)	5.30 (4.90-5.80)	10.3 (9.40-11.5)	18.4 (17.0-19.5)	26.5 (23.7-30.2)	2489
	13-14	4.24 (3.94-4.57)	4.70 (4.20-5.00)	8.50 (7.60-9.30)	15.2 (13.3-17.3)	20.2 (18.2-23.7)	2685
Age group							
6-11 years	11-12	6.96 (5.86-8.28)	8.10 (6.90-9.70)	14.6 (12.8-17.1)	26.1 (22.6-28.4)	34.7 (27.9-42.5)	396
	13-14	6.51 (5.49-7.72)	6.60 (5.10-8.30)	12.4 (10.2-16.4)	23.4 (17.1-30.0)	33.0 (24.2-50.7)	409
12-19 years	11-12	5.70 (4.64-7.01)	5.70 (4.60-7.30)	12.2 (10.5-13.7)	22.2 (19.1-29.5)	35.1 (23.0-46.8)	388
	13-14	5.34 (4.57-6.24)	5.50 (4.40-7.00)	10.5 (8.10-13.3)	17.5 (14.9-23.8)	25.6 (17.6-33.7)	462
20 years and older	11-12	4.83 (4.45-5.23)	5.10 (4.70-5.60)	9.60 (8.50-10.8)	16.7 (14.5-18.6)	23.0 (20.8-26.5)	1705
	13-14	3.91 (3.65-4.19)	4.40 (3.90-4.80)	7.80 (7.10-8.70)	13.9 (12.1-15.7)	19.1 (17.1-20.8)	1814
Gender							
Males	11-12	5.50 (5.07-5.95)	5.70 (5.10-6.30)	10.5 (8.90-12.2)	18.7 (16.9-21.2)	28.1 (23.4-34.3)	1259
	13-14	4.45 (4.05-4.89)	4.90 (4.40-5.30)	8.10 (7.30-9.00)	13.7 (12.6-15.9)	19.8 (17.3-23.6)	1285
Females	11-12	4.71 (4.39-5.07)	5.00 (4.70-5.60)	10.2 (9.20-11.1)	18.1 (15.8-19.3)	25.4 (21.9-29.6)	1230
	13-14	4.06 (3.65-4.50)	4.20 (3.60-4.80)	9.00 (7.70-9.90)	16.2 (13.9-18.2)	21.5 (17.6-25.5)	1400
Race/ethnicity							
Mexican Americans	11-12	5.86 (4.69-7.33)	5.90 (4.40-7.50)	11.6 (8.40-14.4)	20.5 (15.4-25.4)	31.5 (22.5-35.1)	316
	13-14	5.03 (4.21-6.01)	5.20 (4.60-5.80)	9.40 (7.70-11.5)	18.3 (12.3-24.2)	25.1 (19.5-34.3)	438
Non-Hispanic blacks	11-12	7.30 (6.48-8.22)	7.40 (6.70-8.00)	14.0 (11.5-16.0)	26.0 (21.1-32.1)	36.9 (30.8-48.2)	665
	13-14	5.38 (4.58-6.31)	5.80 (5.00-7.00)	10.8 (9.10-12.0)	17.5 (15.2-21.8)	25.3 (21.7-29.7)	609
Non-Hispanic whites	11-12	4.62 (4.31-4.96)	4.90 (4.50-5.50)	9.50 (8.40-10.8)	16.1 (13.8-18.6)	21.2 (19.0-25.9)	813
	13-14	3.95 (3.63-4.30)	4.40 (3.90-4.80)	7.90 (7.00-9.10)	14.2 (12.0-16.5)	19.1 (16.5-23.4)	987
All Hispanics	11-12	5.94 (5.17-6.83)	6.00 (4.80-7.30)	11.8 (9.70-14.0)	22.5 (19.8-25.8)	34.3 (26.2-39.8)	571
	13-14	4.95 (4.46-5.49)	5.30 (4.80-5.70)	9.20 (8.30-10.4)	17.5 (12.9-20.2)	24.2 (19.7-28.5)	690
Asians	11-12	4.39 (3.63-5.31)	4.20 (3.30-5.20)	9.40 (7.20-11.3)	19.0 (15.0-27.8)	36.8 (25.4-52.4)	352
	13-14	3.25 (2.81-3.76)	3.20 (2.60-4.10)	6.20 (5.10-7.30)	11.0 (9.50-13.7)	16.1 (11.7-23.3)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.2, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	12.6 (11.5-13.9)	11.2 (10.2-12.3)	21.3 (18.3-23.8)	45.2 (37.1-58.1)	87.0 (68.0-124)	2782
	03-04	13.6 (12.4-14.8)	12.1 (11.0-12.9)	24.3 (20.9-27.8)	63.0 (47.8-75.8)	118 (94.1-153)	2605
	05-06	15.8 (14.2-17.5)	13.5 (12.4-14.7)	28.9 (26.0-33.8)	77.7 (62.4-91.1)	144 (118-172)	2548
	07-08	12.3 (10.7-14.0)	11.0 (9.72-12.2)	22.3 (18.4-27.9)	52.9 (37.9-74.6)	107 (74.8-136)	2604
	09-10	8.37 (7.31-9.59)	7.44 (6.71-8.42)	13.5 (11.5-15.7)	25.9 (21.4-34.6)	47.7 (34.6-67.8)	2749
Age group 6-11 years	01-02	26.6 (24.0-29.4)	22.8 (20.3-25.0)	43.3 (33.6-47.1)	74.7 (69.0-91.9)	131 (83.0-183)	393
	03-04	26.6 (21.4-33.0)	25.3 (17.8-32.4)	43.6 (34.2-63.2)	77.1 (63.0-118)	121 (76.3-435)	342
	05-06	25.4 (22.5-28.6)	24.4 (21.4-26.4)	42.7 (36.0-46.9)	70.4 (52.8-117)	136 (77.2-195)	356
	07-08	20.8 (17.1-25.4)	18.5 (15.6-21.5)	35.0 (26.4-46.0)	84.1 (47.2-137)	145 (84.8-187)	389
	09-10	12.7 (11.4-14.2)	12.6 (11.5-14.1)	20.8 (16.5-25.1)	33.3 (29.5-44.1)	45.5 (33.7-74.5)	415
12-19 years	01-02	13.5 (12.0-15.2)	12.0 (10.8-14.3)	23.4 (20.0-28.5)	48.4 (39.2-54.9)	70.5 (55.0-97.2)	742
	03-04	14.6 (12.6-16.9)	12.7 (11.6-14.4)	25.5 (20.7-33.8)	67.9 (42.3-143)	153 (61.8-209)	729
	05-06	17.2 (14.1-20.9)	15.3 (12.5-18.6)	32.5 (25.7-41.3)	84.2 (49.1-147)	163 (93.1-250)	702
	07-08	13.2 (10.3-16.7)	11.1 (9.08-13.5)	25.9 (18.9-35.6)	86.3 (39.4-128)	132 (84.3-203)	401
	09-10	8.06 (6.57-9.88)	7.05 (6.16-8.25)	13.3 (9.53-18.3)	24.8 (17.8-47.9)	55.2 (23.6-110)	420
20 years and older	01-02	11.4 (10.2-12.8)	10.1 (8.89-11.4)	17.5 (15.2-21.8)	38.4 (30.5-52.5)	84.3 (53.3-128)	1647
	03-04	12.4 (11.5-13.3)	11.0 (10.0-12.0)	20.9 (18.6-22.8)	53.9 (40.7-70.2)	109 (88.6-130)	1534
	05-06	14.8 (13.3-16.4)	12.4 (11.2-13.5)	26.7 (23.8-31.3)	76.3 (61.0-89.9)	144 (106-170)	1490
	07-08	11.4 (10.0-13.0)	10.0 (9.15-11.2)	20.8 (16.7-25.6)	47.3 (33.2-65.3)	87.4 (62.7-136)	1814
	09-10	8.04 (6.99-9.24)	7.19 (6.36-8.00)	12.7 (10.7-14.7)	24.3 (19.7-34.6)	47.4 (33.7-67.3)	1914
Gender Males	01-02	11.8 (10.7-13.0)	10.2 (8.93-11.7)	21.2 (18.5-23.3)	46.1 (35.3-58.7)	84.2 (69.6-104)	1371
	03-04	12.3 (11.1-13.5)	11.1 (10.0-12.0)	21.6 (17.6-26.9)	59.1 (45.4-72.0)	120 (72.0-162)	1250
	05-06	14.7 (12.9-16.7)	12.6 (10.9-14.3)	27.1 (23.3-35.6)	79.5 (59.6-96.9)	147 (120-190)	1270
	07-08	10.5 (9.08-12.2)	9.25 (8.08-10.6)	18.9 (15.9-23.1)	46.7 (32.6-62.4)	86.4 (56.5-144)	1294
	09-10	8.19 (7.15-9.38)	7.07 (6.59-7.55)	13.4 (10.8-15.8)	30.2 (21.7-41.2)	52.1 (41.2-82.3)	1399
Females	01-02	13.5 (11.9-15.2)	12.0 (10.8-13.7)	21.5 (18.0-25.6)	44.8 (36.8-61.6)	92.3 (61.0-139)	1411
	03-04	14.9 (13.4-16.7)	12.7 (11.4-14.2)	26.6 (21.8-30.6)	65.6 (48.0-90.1)	118 (97.0-157)	1355
	05-06	16.9 (15.1-19.0)	14.7 (13.2-16.5)	30.3 (26.6-34.7)	76.4 (57.6-97.2)	137 (106-170)	1278
	07-08	14.2 (12.5-16.0)	12.5 (11.5-13.8)	25.9 (21.2-31.0)	61.1 (40.9-84.1)	114 (84.3-142)	1310
	09-10	8.55 (7.37-9.93)	8.06 (6.76-9.33)	13.6 (11.6-16.2)	24.1 (20.0-32.7)	43.2 (27.7-64.5)	1350

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	12.4 (11.4-13.5)	11.0 (10.5-12.3)	20.9 (18.5-24.4)	44.6 (33.4-56.2)	65.9 (53.1-83.1)	677
	03-04	11.5 (9.81-13.6)	10.7 (9.04-12.3)	18.8 (15.6-24.6)	39.1 (31.8-53.9)	63.0 (47.2-121)	652
	05-06	13.3 (11.1-16.1)	11.4 (9.58-13.6)	24.0 (19.4-30.4)	61.2 (45.6-85.9)	102 (69.9-200)	637
	07-08	12.3 (10.0-15.0)	10.6 (8.57-14.1)	21.7 (16.1-28.7)	53.1 (32.7-85.2)	113 (79.7-149)	531
	09-10	9.50 (8.16-11.1)	8.72 (8.13-9.61)	16.6 (12.9-20.5)	35.4 (24.4-46.6)	56.7 (40.9-82.3)	566
Non-Hispanic blacks	01-02	13.8 (12.3-15.4)	13.1 (12.0-14.2)	23.9 (20.0-29.3)	58.3 (45.3-79.7)	101 (81.3-124)	703
	03-04	14.3 (13.1-15.6)	13.3 (11.3-15.5)	24.8 (21.7-27.7)	61.2 (46.8-76.6)	105 (79.7-152)	699
	05-06	15.3 (13.2-17.8)	11.6 (9.87-14.6)	29.1 (24.7-38.5)	77.1 (61.9-113)	172 (99.8-251)	678
	07-08	11.0 (9.94-12.2)	9.90 (9.16-11.1)	20.6 (16.6-23.5)	42.2 (33.8-58.6)	75.8 (57.2-124)	597
	09-10	6.92 (5.60-8.57)	6.49 (5.12-8.24)	11.4 (9.09-14.1)	19.2 (14.9-27.3)	28.1 (19.8-61.1)	516
Non-Hispanic whites	01-02	12.7 (11.4-14.0)	11.1 (9.90-12.3)	20.8 (18.0-23.9)	45.7 (35.9-64.9)	96.0 (68.5-161)	1216
	03-04	13.7 (12.2-15.3)	12.0 (10.5-12.9)	24.9 (20.7-28.6)	69.5 (51.4-95.3)	124 (90.3-182)	1088
	05-06	16.3 (14.8-18.0)	14.0 (12.9-15.7)	30.8 (27.3-34.8)	79.3 (66.0-93.8)	139 (117-163)	1038
	07-08	12.2 (10.3-14.5)	11.0 (9.38-13.1)	22.3 (17.4-30.4)	51.4 (35.7-77.7)	107 (74.6-139)	1077
	09-10	8.53 (7.35-9.90)	7.62 (6.76-8.54)	13.7 (11.2-16.2)	24.9 (20.3-35.7)	47.8 (32.8-76.4)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.78 (5.51-6.06)	5.51 (5.12-5.83)	8.99 (8.41-9.83)	15.6 (14.3-16.8)	23.4 (19.6-28.0)	2487
	13-14	4.25 (3.92-4.61)	4.02 (3.74-4.43)	6.61 (5.93-7.26)	11.1 (9.73-12.7)	16.4 (13.9-18.1)	2684
Age group							
6-11 years	11-12	9.93 (8.63-11.4)	9.89 (8.25-11.4)	16.5 (14.3-18.9)	25.6 (22.9-30.2)	34.5 (27.9-41.9)	395
	13-14	8.23 (7.16-9.44)	7.77 (6.25-9.38)	12.8 (10.7-17.1)	24.7 (17.9-37.1)	37.4 (21.4-80.7)	409
12-19 years	11-12	5.55 (4.95-6.23)	5.21 (4.81-5.61)	8.54 (7.09-11.1)	16.3 (12.9-21.3)	31.6 (16.8-35.3)	388
	13-14	4.33 (3.82-4.92)	4.07 (3.71-4.69)	6.55 (5.64-7.19)	10.7 (8.02-13.4)	15.3 (11.5-18.6)	462
20 years and older	11-12	5.48 (5.23-5.74)	5.19 (4.89-5.56)	8.39 (7.95-8.98)	13.9 (12.8-15.3)	19.3 (16.6-25.4)	1704
	13-14	3.95 (3.63-4.30)	3.85 (3.54-4.15)	6.15 (5.48-6.75)	9.83 (8.57-11.1)	13.6 (12.2-16.3)	1813
Gender							
Males	11-12	5.14 (4.86-5.43)	4.86 (4.55-5.12)	7.83 (7.29-8.24)	14.7 (12.7-16.1)	22.6 (18.1-29.7)	1258
	13-14	3.74 (3.45-4.06)	3.70 (3.46-3.91)	5.59 (5.13-6.37)	9.03 (8.37-9.74)	14.3 (11.6-16.8)	1284
Females	11-12	6.48 (6.07-6.91)	6.34 (5.71-6.91)	10.0 (9.34-11.0)	16.5 (14.7-18.6)	23.5 (19.5-27.9)	1229
	13-14	4.81 (4.31-5.37)	4.58 (4.00-5.16)	7.42 (6.58-8.62)	12.6 (10.7-15.6)	17.2 (14.8-21.3)	1400
Race/ethnicity							
Mexican Americans	11-12	6.61 (5.43-8.05)	6.00 (4.83-7.45)	11.3 (8.87-13.9)	18.9 (15.8-22.8)	28.1 (18.2-60.8)	316
	13-14	5.13 (4.57-5.75)	4.90 (4.42-5.49)	8.51 (6.80-10.7)	14.3 (12.0-19.5)	20.7 (15.6-31.7)	438
Non-Hispanic blacks	11-12	5.68 (5.11-6.32)	5.31 (4.71-5.70)	9.33 (7.79-10.8)	16.9 (13.6-23.4)	29.4 (18.8-39.2)	665
	13-14	3.97 (3.55-4.44)	3.79 (3.28-4.42)	6.43 (5.67-7.31)	10.6 (9.55-12.2)	14.1 (11.2-18.6)	609
Non-Hispanic whites	11-12	5.61 (5.17-6.08)	5.41 (4.90-5.99)	8.42 (7.84-9.61)	14.3 (12.5-15.8)	20.5 (16.6-25.4)	811
	13-14	4.16 (3.75-4.62)	3.96 (3.70-4.41)	6.37 (5.47-7.23)	10.3 (8.57-12.7)	15.6 (12.8-17.3)	987
All Hispanics	11-12	6.66 (6.05-7.33)	6.04 (5.49-6.74)	11.3 (10.0-13.5)	18.9 (16.9-21.0)	30.2 (20.8-41.9)	571
	13-14	4.91 (4.55-5.31)	4.60 (4.26-5.07)	7.76 (6.94-9.27)	13.6 (11.5-17.0)	20.2 (16.9-25.2)	690
Asians	11-12	5.88 (4.96-6.97)	5.30 (4.59-6.36)	10.0 (8.11-12.2)	20.2 (14.7-26.3)	39.3 (23.5-50.1)	352
	13-14	4.12 (3.68-4.62)	3.67 (3.20-4.49)	7.02 (5.79-8.62)	11.2 (10.0-13.9)	15.7 (12.1-24.4)	288

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Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2003 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	34.7 (31.0-38.9)	33.0 (29.1-37.4)	71.8 (61.7-84.8)	168 (133-240)	339 (235-506)	2605
	05-06	38.6 (34.7-42.9)	35.6 (31.1-40.3)	79.7 (70.9-92.9)	211 (180-246)	386 (311-484)	2548
	07-08	33.3 (28.7-38.6)	31.2 (27.1-36.0)	69.5 (55.8-86.3)	153 (120-216)	308 (220-397)	2604
	09-10	20.7 (18.5-23.3)	20.4 (18.1-23.5)	39.9 (34.9-45.5)	78.4 (67.2-95.5)	127 (99.5-199)	2749
Age group							
6-11 years	03-04	58.2 (44.7-75.6)	51.6 (39.2-67.6)	112 (71.4-182)	314 (124-524)	391 (238-781)	342
	05-06	57.4 (50.2-65.7)	53.5 (42.7-67.2)	94.7 (83.2-108)	200 (154-247)	297 (196-548)	356
	07-08	46.6 (39.2-55.3)	44.1 (34.9-54.7)	92.7 (64.7-112)	156 (117-278)	357 (176-441)	389
	09-10	27.7 (24.7-31.2)	29.4 (25.4-33.2)	48.5 (39.0-60.2)	87.1 (64.4-102)	118 (87.1-202)	415
12-19 years	03-04	44.6 (36.8-54.0)	42.7 (38.4-47.6)	86.5 (67.3-108)	220 (120-397)	448 (235-808)	729
	05-06	52.9 (43.0-65.2)	46.7 (39.4-61.6)	114 (85.6-173)	314 (195-515)	560 (324-1180)	702
	07-08	44.3 (35.2-55.9)	38.9 (28.9-49.3)	97.3 (64.3-127)	247 (140-456)	476 (231-977)	401
	09-10	26.2 (22.4-30.6)	25.7 (21.2-30.0)	50.1 (38.3-57.7)	90.3 (58.2-162)	147 (83.9-349)	420
20 years and older	03-04	31.3 (28.6-34.4)	29.2 (26.2-33.0)	63.5 (56.5-73.9)	157 (130-187)	312 (199-457)	1534
	05-06	35.1 (31.5-39.0)	31.3 (28.1-35.7)	72.7 (65.4-82.4)	193 (163-237)	377 (285-460)	1490
	07-08	30.7 (26.4-35.8)	29.2 (24.3-34.4)	63.2 (51.6-80.0)	145 (109-206)	286 (182-378)	1814
	09-10	19.4 (17.0-22.0)	18.8 (15.7-22.3)	37.7 (32.8-44.0)	76.9 (63.1-92.8)	126 (96.1-197)	1914
Gender							
Males	03-04	37.9 (33.1-43.5)	34.7 (30.0-39.5)	73.7 (60.8-91.9)	187 (133-300)	388 (222-660)	1250
	05-06	43.6 (38.1-49.8)	39.7 (31.9-46.2)	87.0 (76.8-103)	260 (188-308)	460 (347-670)	1270
	07-08	34.4 (29.3-40.5)	31.5 (27.3-35.7)	65.1 (52.1-87.4)	161 (120-217)	321 (213-422)	1294
	09-10	23.4 (20.7-26.4)	23.0 (20.2-25.6)	44.9 (40.1-51.0)	87.1 (70.3-110)	162 (107-288)	1399
Females	03-04	31.9 (28.1-36.2)	31.3 (27.5-35.8)	69.3 (58.9-81.9)	154 (128-199)	312 (182-441)	1355
	05-06	34.3 (30.4-38.6)	31.7 (28.0-36.6)	71.0 (63.0-85.3)	192 (156-217)	309 (251-386)	1278
	07-08	32.3 (27.8-37.5)	31.0 (26.4-38.3)	73.0 (56.9-90.2)	147 (112-220)	297 (185-420)	1310
	09-10	18.5 (16.2-21.0)	18.8 (15.8-22.4)	34.7 (29.3-41.5)	72.9 (56.3-93.2)	111 (90.3-146)	1350
Race/ethnicity							
Mexican Americans	03-04	31.9 (27.1-37.6)	31.5 (26.8-37.4)	57.4 (45.9-71.8)	116 (86.0-162)	175 (133-355)	652
	05-06	39.4 (30.3-51.2)	34.2 (24.1-47.1)	74.6 (54.0-111)	220 (124-338)	394 (222-673)	637
	07-08	36.7 (30.6-44.0)	31.3 (27.0-35.7)	71.9 (54.9-91.7)	162 (123-241)	321 (209-477)	531
	09-10	26.2 (22.5-30.4)	25.8 (22.3-29.8)	51.0 (41.3-57.4)	92.6 (74.5-122)	160 (113-245)	566
Non-Hispanic blacks	03-04	42.6 (37.0-49.2)	38.3 (33.8-46.9)	82.5 (68.7-103)	191 (146-246)	339 (244-468)	699
	05-06	46.6 (41.3-52.5)	40.3 (35.6-46.1)	96.3 (76.6-132)	256 (208-347)	455 (328-528)	678
	07-08	35.0 (31.1-39.4)	35.6 (30.7-38.8)	71.6 (59.1-84.5)	151 (113-192)	235 (184-338)	597
	09-10	21.9 (18.6-25.7)	22.3 (18.2-25.6)	40.5 (35.7-47.1)	77.0 (61.1-97.1)	127 (76.0-268)	516
Non-Hispanic whites	03-04	33.8 (30.1-37.9)	32.1 (27.6-37.5)	72.4 (62.0-87.7)	167 (133-240)	354 (220-560)	1088
	05-06	37.0 (33.4-41.0)	35.4 (30.4-40.9)	79.7 (70.0-93.3)	203 (174-237)	380 (284-484)	1038
	07-08	32.0 (26.7-38.3)	30.4 (24.5-38.0)	67.6 (52.5-90.9)	145 (105-244)	316 (197-476)	1077
	09-10	19.6 (17.2-22.2)	19.3 (16.4-23.1)	39.3 (33.0-45.3)	75.0 (61.9-95.7)	120 (95.5-197)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.3, 0.6, 0.5, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	12.9 (12.0-13.9)	13.5 (12.4-14.8)	25.3 (23.6-26.7)	43.9 (40.0-51.1)	68.9 (60.4-75.2)	2489
	13-14	10.5 (9.71-11.5)	11.1 (10.1-12.0)	20.0 (17.9-22.5)	36.4 (31.4-42.0)	50.7 (46.5-58.7)	2685
Age group							
6-11 years	11-12	18.8 (16.1-21.9)	21.6 (17.3-24.1)	36.8 (31.5-41.4)	63.5 (51.5-71.5)	81.5 (68.1-95.1)	396
	13-14	18.2 (15.5-21.4)	18.1 (14.2-23.4)	33.9 (28.3-39.6)	54.3 (45.5-71.8)	81.1 (58.5-142)	409
12-19 years	11-12	14.3 (11.3-18.0)	14.0 (11.6-17.5)	28.4 (23.5-36.8)	59.3 (47.1-70.2)	74.6 (59.3-135)	388
	13-14	13.6 (11.8-15.7)	13.8 (11.2-16.2)	25.7 (20.0-29.9)	44.4 (31.2-64.6)	64.9 (48.6-99.5)	462
20 years and older	11-12	12.2 (11.3-13.3)	13.0 (11.4-14.4)	23.8 (21.8-25.8)	40.2 (36.9-43.9)	61.8 (52.1-73.6)	1705
	13-14	9.57 (8.84-10.4)	10.1 (9.10-11.3)	18.3 (16.6-19.8)	32.1 (27.5-37.8)	46.4 (39.5-51.8)	1814
Gender							
Males	11-12	14.3 (13.0-15.6)	14.6 (12.7-16.4)	24.7 (23.1-27.6)	45.7 (40.2-54.9)	71.5 (59.8-88.4)	1259
	13-14	11.1 (9.98-12.3)	11.6 (10.6-12.5)	19.3 (17.1-22.3)	35.1 (29.3-44.0)	50.7 (47.4-58.4)	1285
Females	11-12	11.8 (10.8-12.9)	12.4 (11.2-13.7)	25.6 (23.4-26.6)	42.3 (37.4-49.5)	64.9 (54.4-76.8)	1230
	13-14	10.1 (9.05-11.2)	10.2 (8.90-11.7)	20.6 (18.4-23.2)	36.9 (31.5-41.8)	51.7 (41.3-64.9)	1400
Race/ethnicity							
Mexican Americans	11-12	15.8 (12.7-19.6)	14.9 (12.7-18.3)	28.1 (22.6-34.3)	51.3 (42.5-71.3)	72.6 (56.6-109)	316
	13-14	13.4 (11.0-16.2)	13.1 (12.1-14.2)	23.4 (18.0-30.2)	44.4 (31.8-67.9)	67.9 (42.0-95.0)	438
Non-Hispanic blacks	11-12	16.4 (14.5-18.5)	16.2 (14.4-18.8)	30.7 (26.0-36.6)	60.9 (47.5-69.9)	78.1 (68.2-96.7)	665
	13-14	11.5 (9.62-13.8)	12.7 (10.4-14.6)	21.5 (18.5-25.6)	36.4 (30.4-48.6)	58.5 (42.1-71.8)	609
Non-Hispanic whites	11-12	11.8 (10.9-12.9)	12.5 (11.0-14.6)	23.8 (21.8-25.7)	39.9 (34.8-44.2)	55.8 (47.1-76.8)	813
	13-14	9.81 (8.92-10.8)	10.3 (9.20-11.4)	19.3 (16.5-22.0)	34.1 (28.7-41.0)	49.1 (43.1-54.8)	987
All Hispanics	11-12	16.0 (14.0-18.2)	15.2 (12.9-18.2)	30.1 (24.5-37.8)	59.8 (50.0-68.9)	76.0 (70.2-104)	571
	13-14	13.1 (11.7-14.7)	13.4 (12.3-14.4)	23.1 (20.6-26.5)	41.6 (35.1-54.1)	63.5 (45.5-75.4)	690
Asians	11-12	12.0 (10.2-14.2)	11.7 (10.2-13.7)	23.6 (19.5-27.7)	51.1 (36.5-70.0)	80.5 (58.7-138)	352
	13-14	9.01 (7.74-10.5)	9.20 (7.20-11.1)	16.5 (14.3-18.5)	27.3 (22.9-31.4)	39.4 (29.4-63.2)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.4, respectively.

Biomonitoring Summary

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Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2003 – 2010)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	32.6 (29.6-36.0)	27.0 (24.3-30.6)	54.6 (48.0-63.5)	139 (109-186)	251 (192-356)	2605
	05-06	37.6 (33.7-42.0)	32.2 (29.5-37.0)	67.5 (58.2-80.8)	168 (139-209)	290 (261-328)	2548
	07-08	33.6 (29.7-38.0)	29.1 (25.8-32.2)	58.7 (49.6-68.8)	138 (109-164)	233 (178-319)	2604
	09-10	21.6 (19.0-24.7)	19.2 (16.8-22.1)	33.7 (30.0-40.0)	69.4 (54.0-84.3)	121 (85.1-184)	2749
Age group							
6-11 years	03-04	61.5 (49.0-77.2)	52.2 (41.6-73.8)	104 (74.2-140)	210 (111-500)	372 (192-988)	342
	05-06	63.2 (55.6-71.9)	54.2 (48.1-63.6)	92.8 (82.6-111)	160 (124-247)	312 (172-480)	356
	07-08	57.4 (49.2-66.9)	49.6 (42.7-61.5)	94.2 (79.5-122)	185 (138-294)	376 (188-404)	389
	09-10	36.1 (32.4-40.3)	33.6 (32.3-36.8)	55.4 (43.9-66.9)	88.7 (69.2-113)	121 (90.6-224)	415
12-19 years	03-04	33.4 (28.7-38.7)	27.1 (23.9-32.0)	55.0 (43.8-83.8)	168 (92.5-289)	294 (159-387)	729
	05-06	39.5 (32.5-47.8)	33.9 (27.9-41.0)	72.7 (56.9-96.7)	197 (106-327)	385 (216-531)	702
	07-08	34.5 (28.1-42.3)	28.0 (23.2-35.0)	65.9 (47.5-85.9)	159 (90.1-233)	246 (159-489)	401
	09-10	21.1 (17.4-25.5)	18.2 (15.6-20.7)	33.2 (25.5-43.3)	64.9 (42.7-158)	158 (58.4-246)	420
20 years and older	03-04	30.1 (27.7-32.7)	25.1 (22.9-27.6)	49.1 (44.1-55.2)	126 (101-154)	237 (191-315)	1534
	05-06	35.2 (31.2-39.6)	29.8 (26.1-33.3)	60.8 (54.2-74.0)	167 (131-206)	279 (247-322)	1490
	07-08	31.5 (27.8-35.8)	27.8 (24.1-30.8)	53.1 (45.0-65.4)	128 (101-155)	214 (162-319)	1814
	09-10	20.5 (17.9-23.5)	18.2 (15.9-20.5)	31.7 (27.4-36.8)	65.0 (52.1-80.6)	118 (81.3-173)	1914
Gender							
Males	03-04	29.8 (26.8-33.1)	23.5 (21.4-27.1)	50.7 (42.2-61.7)	132 (98.0-191)	248 (159-422)	1250
	05-06	35.0 (30.7-39.9)	29.0 (25.7-32.1)	69.3 (54.2-82.9)	172 (141-210)	301 (249-376)	1270
	07-08	29.0 (25.3-33.2)	25.1 (21.7-28.8)	47.6 (40.8-57.4)	120 (91.7-157)	210 (157-331)	1294
	09-10	21.0 (18.4-23.9)	18.4 (16.1-20.4)	33.1 (29.2-38.5)	70.2 (53.4-94.6)	125 (92.8-210)	1399
Females	03-04	35.5 (31.6-40.0)	30.6 (26.4-35.5)	58.3 (48.8-71.8)	144 (108-192)	251 (192-349)	1355
	05-06	40.3 (36.2-44.9)	36.7 (31.6-40.0)	66.1 (58.2-83.7)	168 (127-206)	279 (240-341)	1278
	07-08	38.7 (34.5-43.3)	32.8 (30.0-36.4)	67.8 (58.5-80.0)	147 (117-176)	266 (176-379)	1310
	09-10	22.3 (19.3-25.7)	20.5 (17.2-23.9)	34.9 (30.0-41.7)	67.0 (53.5-80.8)	104 (80.8-170)	1350
Race/ethnicity							
Mexican Americans	03-04	28.8 (25.4-32.6)	24.7 (22.4-26.3)	46.7 (39.0-56.3)	94.7 (73.2-137)	152 (118-238)	652
	05-06	35.5 (28.7-43.7)	29.8 (25.5-34.9)	61.5 (48.4-86.2)	165 (105-201)	278 (181-501)	637
	07-08	35.8 (29.1-44.0)	30.6 (23.2-38.6)	64.1 (47.2-84.8)	151 (92.3-240)	286 (198-402)	531
	09-10	26.0 (22.5-30.0)	23.8 (21.3-27.0)	40.1 (35.0-52.3)	88.8 (69.5-104)	148 (100-203)	566
Non-Hispanic blacks	03-04	30.3 (27.7-33.2)	27.0 (23.2-30.7)	51.1 (41.6-64.0)	135 (100-161)	212 (173-252)	699
	05-06	32.7 (28.9-37.1)	27.1 (22.4-31.5)	62.4 (53.1-76.0)	166 (119-260)	370 (231-429)	678
	07-08	27.2 (24.3-30.5)	23.5 (21.9-26.1)	49.1 (37.7-58.6)	103 (85.9-132)	178 (140-259)	597
	09-10	15.9 (12.6-19.9)	14.5 (11.5-18.8)	26.3 (19.5-32.9)	48.0 (32.6-66.4)	70.7 (46.1-209)	516
Non-Hispanic whites	03-04	33.4 (29.5-37.7)	27.0 (23.5-31.6)	56.8 (48.6-69.4)	145 (109-198)	294 (193-385)	1088
	05-06	39.0 (34.9-43.4)	34.3 (30.3-39.1)	69.5 (59.5-83.7)	182 (143-214)	284 (237-324)	1038
	07-08	33.4 (28.4-39.3)	29.2 (25.1-34.6)	57.7 (46.6-72.4)	138 (101-166)	233 (164-338)	1077
	09-10	22.0 (19.1-25.3)	19.4 (16.8-22.9)	34.0 (29.3-42.5)	67.6 (52.5-84.3)	113 (81.3-188)	1206

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Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-2-ethylhexyl phthalate (DEHP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	14.7 (13.8-15.7)	14.1 (12.9-15.1)	22.7 (21.1-25.3)	38.9 (34.5-44.3)	59.8 (54.5-63.5)	2487
	13-14	10.6 (9.68-11.6)	10.2 (9.32-11.0)	16.2 (14.5-18.2)	28.5 (25.3-32.0)	40.3 (35.2-46.0)	2684
Age group							
6-11 years	11-12	26.8 (23.6-30.3)	26.2 (22.6-29.4)	41.5 (36.5-47.2)	63.5 (57.5-70.7)	84.4 (71.3-107)	395
	13-14	23.0 (20.4-26.0)	21.1 (18.4-24.7)	33.8 (29.6-41.3)	64.7 (41.9-97.3)	97.3 (60.0-180)	409
12-19 years	11-12	13.9 (11.7-16.5)	12.5 (10.7-15.5)	22.2 (16.5-29.2)	41.4 (30.3-60.8)	70.9 (46.9-92.9)	388
	13-14	11.0 (9.68-12.6)	10.2 (8.77-12.2)	16.9 (14.4-20.5)	28.9 (23.2-35.5)	40.7 (33.8-48.8)	462
20 years and older	11-12	13.9 (13.0-14.8)	13.3 (12.4-14.4)	21.3 (19.5-22.8)	33.9 (30.6-39.0)	53.7 (42.9-63.2)	1704
	13-14	9.65 (8.80-10.6)	9.62 (8.61-10.4)	14.5 (13.0-16.3)	24.4 (21.0-28.3)	34.2 (28.9-39.6)	1813
Gender							
Males	11-12	13.3 (12.6-14.1)	12.5 (11.6-13.3)	20.1 (17.8-21.6)	35.0 (31.0-38.8)	56.4 (46.4-62.4)	1258
	13-14	9.32 (8.50-10.2)	9.05 (8.18-9.88)	14.1 (12.6-15.5)	24.7 (21.0-29.0)	37.1 (33.8-41.9)	1284
Females	11-12	16.2 (14.6-18.0)	15.8 (14.1-17.7)	25.8 (22.2-29.4)	44.1 (37.6-50.8)	63.2 (54.3-72.4)	1229
	13-14	11.9 (10.6-13.4)	11.4 (10.1-12.8)	18.2 (15.9-21.6)	30.1 (27.2-35.2)	42.5 (35.2-57.4)	1400
Race/ethnicity							
Mexican Americans	11-12	17.8 (14.6-21.6)	15.3 (12.7-19.8)	28.4 (21.9-39.0)	53.4 (44.7-62.9)	80.0 (52.4-115)	316
	13-14	13.6 (12.1-15.3)	12.1 (11.3-13.6)	22.0 (17.3-27.4)	39.5 (30.0-51.6)	55.9 (41.5-66.7)	438
Non-Hispanic blacks	11-12	12.8 (11.3-14.4)	11.8 (10.6-13.0)	20.8 (18.0-25.0)	40.4 (29.6-50.3)	59.4 (46.2-75.6)	665
	13-14	8.51 (7.48-9.68)	8.22 (7.07-9.65)	14.2 (12.1-16.4)	23.9 (20.9-27.1)	35.3 (27.3-41.6)	609
Non-Hispanic whites	11-12	14.3 (13.1-15.7)	13.9 (12.6-15.2)	21.8 (19.7-24.6)	34.3 (30.1-42.2)	54.9 (42.9-60.9)	811
	13-14	10.3 (9.23-11.6)	10.0 (9.02-11.1)	15.4 (13.0-18.6)	27.2 (21.6-32.0)	35.9 (30.0-48.2)	987
All Hispanics	11-12	17.9 (16.2-19.7)	15.7 (14.1-18.1)	30.0 (25.8-33.4)	53.4 (44.8-64.0)	80.0 (59.0-107)	571
	13-14	13.0 (12.0-14.1)	12.1 (11.3-12.9)	20.7 (17.7-23.8)	37.6 (30.9-42.5)	54.1 (42.5-64.4)	690
Asians	11-12	16.1 (13.7-18.9)	14.7 (12.3-17.2)	26.4 (21.7-33.0)	51.2 (41.5-76.9)	90.0 (51.0-142)	352
	13-14	11.5 (10.3-12.8)	10.8 (8.94-12.1)	18.2 (15.1-20.9)	30.7 (27.2-38.0)	40.8 (32.2-65.0)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DEHP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxynonyl) phthalate (MCNP) (2005 – 2010)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	2.73 (2.50-2.98)	2.70 (2.40-3.00)	5.30 (4.80-5.90)	10.2 (8.80-11.9)	17.5 (14.0-21.4)	2548
	07-08	2.42 (2.17-2.71)	2.40 (2.20-2.70)	4.70 (4.20-5.30)	9.20 (8.00-10.6)	16.1 (12.3-21.0)	2604
	09-10	2.88 (2.58-3.22)	2.91 (2.51-3.26)	5.52 (4.83-6.30)	10.6 (9.14-12.6)	16.8 (13.9-22.1)	2749
Age group							
6-11 years	05-06	4.54 (3.94-5.24)	4.70 (4.00-5.60)	8.10 (6.80-9.60)	14.6 (10.8-19.1)	22.8 (16.7-35.3)	356
	07-08	3.15 (2.65-3.74)	3.40 (2.90-3.80)	5.40 (4.60-6.80)	9.10 (7.40-12.3)	14.9 (9.10-24.8)	389
	09-10	3.45 (2.95-4.03)	3.59 (3.04-4.34)	6.39 (5.39-7.41)	9.65 (8.75-11.2)	14.5 (10.4-23.2)	415
12-19 years	05-06	3.18 (2.74-3.68)	3.30 (2.90-3.80)	6.00 (4.70-7.20)	10.3 (7.60-13.7)	16.5 (11.5-21.5)	702
	07-08	2.86 (2.59-3.16)	2.70 (2.40-2.90)	5.10 (4.30-5.70)	10.3 (8.90-13.0)	16.8 (10.7-32.4)	401
	09-10	3.02 (2.61-3.51)	3.05 (2.41-3.65)	5.11 (4.49-6.43)	11.0 (7.24-14.6)	16.9 (10.9-32.0)	420
20 years and older	05-06	2.51 (2.27-2.78)	2.40 (2.20-2.70)	4.90 (4.40-5.40)	9.50 (7.90-11.9)	17.0 (13.1-21.5)	1490
	07-08	2.29 (2.04-2.58)	2.30 (2.00-2.50)	4.50 (4.00-5.10)	9.10 (7.60-10.7)	16.1 (12.2-21.4)	1814
	09-10	2.81 (2.49-3.16)	2.80 (2.44-3.09)	5.52 (4.69-6.45)	10.7 (8.95-13.5)	17.3 (13.5-23.7)	1914
Gender							
Males	05-06	3.16 (2.82-3.54)	3.00 (2.70-3.50)	5.90 (5.10-6.90)	11.0 (8.80-14.0)	19.5 (14.0-28.0)	1270
	07-08	2.75 (2.50-3.03)	2.60 (2.40-2.90)	5.10 (4.50-5.70)	9.50 (8.00-12.2)	19.4 (12.4-29.1)	1294
	09-10	3.14 (2.80-3.53)	3.11 (2.72-3.61)	5.75 (5.13-6.56)	10.4 (9.14-11.5)	15.1 (12.5-20.5)	1399
Females	05-06	2.37 (2.13-2.65)	2.30 (2.00-2.70)	4.80 (4.30-5.30)	9.30 (7.60-11.5)	14.7 (13.1-18.2)	1278
	07-08	2.14 (1.84-2.49)	2.20 (1.80-2.60)	4.40 (3.80-4.90)	9.00 (7.30-10.3)	14.1 (10.8-18.5)	1310
	09-10	2.66 (2.32-3.04)	2.60 (2.21-2.98)	5.21 (4.43-6.17)	11.6 (8.88-14.8)	17.5 (14.6-23.4)	1350
Race/ethnicity							
Mexican Americans	05-06	2.72 (2.40-3.08)	2.70 (2.40-3.20)	4.90 (4.30-5.70)	9.00 (7.00-12.4)	14.4 (9.00-26.8)	637
	07-08	2.37 (2.15-2.62)	2.30 (2.10-2.60)	4.30 (3.70-5.10)	8.40 (6.50-10.5)	12.3 (8.40-16.2)	531
	09-10	2.35 (2.15-2.57)	2.51 (2.18-2.69)	4.35 (3.83-4.83)	7.72 (6.56-9.53)	11.0 (8.09-14.1)	566
Non-Hispanic blacks	05-06	3.18 (2.75-3.67)	3.20 (2.70-3.80)	5.90 (4.90-7.30)	13.0 (9.50-14.6)	19.2 (14.6-30.5)	678
	07-08	2.89 (2.64-3.17)	2.90 (2.50-3.10)	5.60 (4.80-6.20)	11.9 (9.10-15.4)	21.7 (17.9-28.9)	597
	09-10	3.51 (2.92-4.22)	3.64 (2.97-4.24)	6.94 (5.75-8.47)	13.2 (10.2-17.5)	20.8 (13.5-41.7)	516
Non-Hispanic whites	05-06	2.67 (2.39-2.98)	2.60 (2.30-2.90)	5.30 (4.70-6.10)	10.1 (8.20-12.6)	17.6 (12.6-24.3)	1038
	07-08	2.42 (2.09-2.81)	2.40 (2.10-2.70)	4.70 (4.10-5.60)	9.10 (7.60-11.6)	14.9 (10.5-29.1)	1077
	09-10	2.98 (2.61-3.40)	2.96 (2.53-3.48)	5.59 (4.78-6.57)	10.7 (8.83-14.3)	16.6 (12.6-23.7)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.6, 0.5, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxynonyl) phthalate (MCNP) (2011 – 2014)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.49 (2.31-2.68)	2.40 (2.10-2.60)	4.60 (4.20-5.30)	8.90 (8.00-10.6)	15.2 (11.4-20.0)	2489
	13-14	2.81 (2.56-3.10)	2.70 (2.50-2.90)	5.60 (5.00-6.00)	11.1 (9.60-12.5)	17.4 (15.4-20.1)	2685
Age group							
6-11 years	11-12	2.51 (2.15-2.93)	2.70 (2.00-3.00)	4.50 (3.80-5.40)	7.60 (6.60-8.90)	12.9 (7.90-15.4)	396
	13-14	3.63 (3.21-4.10)	3.50 (2.90-4.20)	6.60 (5.50-7.90)	11.6 (8.80-16.3)	17.6 (11.6-28.5)	409
12-19 years	11-12	2.65 (2.24-3.13)	2.50 (2.20-3.00)	5.00 (4.00-6.30)	9.10 (7.70-10.5)	12.2 (10.3-18.0)	388
	13-14	3.25 (2.81-3.75)	2.90 (2.70-3.50)	5.60 (4.60-7.10)	11.2 (8.30-14.7)	16.7 (12.7-22.5)	462
20 years and older	11-12	2.46 (2.24-2.71)	2.30 (2.10-2.60)	4.60 (4.10-5.30)	9.00 (7.70-11.4)	16.9 (11.4-22.2)	1705
	13-14	2.68 (2.41-2.98)	2.60 (2.30-2.80)	5.40 (4.70-6.00)	10.7 (9.00-12.6)	17.5 (15.0-21.1)	1814
Gender							
Males	11-12	2.81 (2.52-3.14)	2.60 (2.30-3.10)	5.40 (4.60-6.20)	9.80 (8.10-14.3)	18.8 (10.7-22.9)	1259
	13-14	3.14 (2.80-3.53)	3.00 (2.70-3.30)	6.00 (5.10-6.80)	11.8 (10.4-14.2)	18.9 (15.5-23.0)	1285
Females	11-12	2.21 (2.03-2.40)	2.20 (1.90-2.40)	4.10 (3.70-4.60)	8.50 (7.70-9.90)	12.0 (10.8-13.7)	1230
	13-14	2.53 (2.24-2.85)	2.50 (2.10-2.80)	5.10 (4.40-5.70)	9.80 (8.50-11.7)	16.0 (12.8-20.4)	1400
Race/ethnicity							
Mexican Americans	11-12	2.22 (1.87-2.64)	2.10 (1.70-2.30)	3.70 (3.10-4.30)	7.20 (4.80-11.0)	17.8 (7.90-28.5)	316
	13-14	2.48 (2.18-2.83)	2.50 (2.20-2.90)	4.30 (3.70-5.00)	7.50 (6.30-8.90)	10.2 (8.30-15.5)	438
Non-Hispanic blacks	11-12	3.02 (2.82-3.25)	2.90 (2.70-3.20)	6.00 (5.00-7.20)	10.2 (8.90-12.5)	17.3 (12.5-21.0)	665
	13-14	3.05 (2.77-3.36)	2.90 (2.60-3.20)	5.60 (4.50-6.60)	10.9 (9.50-11.9)	16.7 (11.7-21.5)	609
Non-Hispanic whites	11-12	2.55 (2.31-2.82)	2.50 (2.10-2.80)	4.80 (4.10-5.60)	9.00 (7.70-11.4)	15.2 (10.3-20.8)	813
	13-14	2.88 (2.55-3.25)	2.80 (2.50-3.00)	5.70 (4.90-6.50)	11.4 (9.30-13.8)	17.1 (15.4-20.1)	987
All Hispanics	11-12	2.27 (2.04-2.53)	2.10 (1.80-2.40)	3.80 (3.40-4.50)	7.90 (6.30-10.4)	16.1 (10.8-21.0)	571
	13-14	2.65 (2.38-2.95)	2.60 (2.30-2.90)	4.90 (4.30-5.40)	8.90 (7.70-11.0)	15.0 (11.0-21.1)	690
Asians	11-12	1.56 (1.33-1.83)	1.40 (1.20-1.50)	2.90 (2.30-4.10)	7.30 (5.90-8.50)	11.2 (8.10-20.0)	352
	13-14	1.82 (1.54-2.15)	1.70 (1.40-2.00)	3.80 (2.80-4.50)	7.10 (5.00-14.0)	14.0 (7.10-29.2)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.2, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxynonyl) phthalate (MCNP) (creatinine corrected) (2005 – 2010)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	2.66 (2.43-2.91)	2.48 (2.29-2.71)	4.48 (4.05-4.85)	8.67 (7.17-9.71)	13.2 (10.8-17.5)	2548
	07-08	2.44 (2.25-2.65)	2.21 (2.00-2.36)	4.00 (3.68-4.44)	8.31 (6.96-9.04)	12.8 (11.2-15.1)	2604
	09-10	3.01 (2.74-3.31)	2.79 (2.48-3.10)	5.04 (4.47-5.66)	9.76 (8.41-11.2)	15.5 (12.8-18.9)	2749
Age group							
6-11 years	05-06	5.00 (4.45-5.63)	5.06 (4.18-5.76)	7.48 (6.70-8.84)	16.1 (12.5-18.9)	23.5 (16.1-31.7)	356
	07-08	3.88 (3.34-4.50)	3.82 (3.17-4.18)	6.07 (5.14-7.00)	11.2 (9.01-13.6)	18.2 (12.6-27.0)	389
	09-10	4.49 (4.01-5.03)	4.33 (3.95-4.82)	7.30 (6.41-8.54)	11.2 (9.74-13.6)	14.9 (12.7-23.1)	415
12-19 years	05-06	2.37 (2.04-2.75)	2.18 (1.91-2.52)	3.64 (2.94-4.55)	6.26 (5.15-8.70)	10.7 (7.57-14.1)	702
	07-08	2.23 (2.07-2.40)	1.96 (1.83-2.08)	3.68 (3.08-3.83)	6.39 (4.88-9.01)	10.0 (7.26-13.5)	401
	09-10	2.43 (2.10-2.81)	2.17 (1.79-2.54)	3.94 (3.23-4.87)	7.67 (5.32-11.2)	12.8 (8.43-14.4)	420
20 years and older	05-06	2.52 (2.29-2.78)	2.37 (2.14-2.57)	4.05 (3.77-4.51)	7.90 (6.46-9.40)	12.0 (9.71-16.7)	1490
	07-08	2.36 (2.15-2.58)	2.14 (1.91-2.32)	3.88 (3.44-4.29)	8.21 (6.67-9.00)	12.3 (11.0-15.3)	1814
	09-10	2.97 (2.69-3.29)	2.72 (2.43-3.03)	4.93 (4.32-5.62)	9.68 (7.90-11.6)	15.6 (11.9-22.5)	1914
Gender							
Males	05-06	2.53 (2.28-2.82)	2.36 (2.14-2.56)	4.38 (3.74-5.04)	7.41 (6.47-8.88)	13.0 (9.40-19.6)	1270
	07-08	2.32 (2.11-2.55)	2.12 (1.90-2.32)	3.88 (3.50-4.29)	7.13 (5.78-9.15)	11.4 (9.68-15.5)	1294
	09-10	2.82 (2.55-3.12)	2.56 (2.28-2.96)	4.73 (4.19-5.49)	8.68 (7.21-10.2)	13.4 (11.2-15.4)	1399
Females	05-06	2.79 (2.47-3.15)	2.65 (2.34-2.95)	4.51 (4.03-5.15)	9.41 (6.82-11.6)	13.5 (10.7-19.7)	1278
	07-08	2.57 (2.33-2.83)	2.27 (2.03-2.57)	4.13 (3.78-4.82)	8.71 (7.41-9.50)	13.5 (12.0-16.0)	1310
	09-10	3.20 (2.88-3.57)	2.98 (2.72-3.28)	5.40 (4.70-6.23)	10.6 (8.39-13.8)	16.9 (12.5-27.3)	1350
Race/ethnicity							
Mexican Americans	05-06	2.45 (2.13-2.81)	2.32 (2.14-2.60)	4.04 (3.64-4.58)	6.96 (5.73-8.14)	11.0 (7.89-19.1)	637
	07-08	2.32 (2.10-2.56)	2.10 (1.90-2.34)	4.12 (3.54-4.68)	6.89 (5.73-7.67)	9.75 (7.69-11.7)	531
	09-10	2.33 (2.08-2.62)	2.12 (1.80-2.66)	3.80 (3.27-4.58)	7.02 (5.44-9.66)	11.3 (8.09-13.0)	566
Non-Hispanic blacks	05-06	2.24 (1.96-2.55)	1.97 (1.78-2.37)	3.60 (3.25-4.24)	7.82 (6.38-10.4)	12.1 (10.1-17.4)	678
	07-08	2.25 (2.05-2.47)	2.00 (1.88-2.17)	3.88 (3.50-4.27)	8.18 (6.25-10.4)	14.9 (9.31-20.4)	597
	09-10	2.54 (2.24-2.88)	2.46 (2.02-2.96)	4.52 (4.20-5.13)	8.51 (6.35-10.9)	11.3 (9.81-16.0)	516
Non-Hispanic whites	05-06	2.81 (2.51-3.14)	2.57 (2.33-2.85)	4.62 (4.10-5.19)	9.26 (7.00-10.8)	13.5 (10.3-23.5)	1038
	07-08	2.53 (2.23-2.86)	2.26 (1.98-2.57)	4.11 (3.66-4.70)	8.51 (6.59-10.2)	13.3 (10.7-17.6)	1077
	09-10	3.35 (2.98-3.77)	3.06 (2.76-3.36)	5.51 (4.74-6.35)	10.4 (8.43-13.5)	15.8 (12.3-24.8)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxynonyl) phthalate (MCNP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-isodecyl phthalate (DiDP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	2.83 (2.57-3.11)	2.50 (2.28-2.80)	4.59 (4.13-5.29)	9.36 (7.85-11.1)	14.6 (11.9-16.8)	2487
	13-14	2.82 (2.65-3.00)	2.62 (2.45-2.83)	4.60 (4.29-5.12)	8.85 (8.01-10.0)	14.4 (12.9-16.0)	2684
Age group							
6-11 years	11-12	3.55 (3.13-4.03)	3.16 (2.73-3.94)	5.25 (4.55-6.45)	9.15 (6.64-14.3)	14.7 (10.0-16.8)	395
	13-14	4.59 (4.06-5.18)	4.33 (3.69-4.75)	7.33 (5.75-8.95)	13.1 (8.40-17.7)	18.9 (13.1-31.1)	409
12-19 years	11-12	2.58 (2.16-3.09)	2.34 (1.96-3.04)	4.67 (3.38-6.13)	7.74 (5.97-11.3)	12.0 (7.74-15.6)	388
	13-14	2.64 (2.38-2.91)	2.43 (2.07-2.79)	4.02 (3.57-4.79)	7.73 (5.73-9.22)	12.0 (8.10-19.0)	462
20 years and older	11-12	2.79 (2.51-3.10)	2.43 (2.21-2.77)	4.46 (4.02-5.27)	9.73 (7.85-11.7)	14.9 (11.8-17.5)	1704
	13-14	2.70 (2.50-2.91)	2.52 (2.34-2.78)	4.38 (3.93-5.00)	8.62 (7.62-9.77)	14.0 (12.2-15.4)	1813
Gender							
Males	11-12	2.63 (2.42-2.86)	2.37 (2.17-2.54)	4.43 (3.83-4.92)	8.49 (6.61-10.0)	12.5 (9.58-15.5)	1258
	13-14	2.64 (2.43-2.87)	2.49 (2.32-2.75)	4.20 (3.79-5.00)	8.20 (7.50-9.77)	13.5 (11.2-17.4)	1284
Females	11-12	3.03 (2.65-3.46)	2.70 (2.30-3.21)	4.82 (4.18-5.80)	10.7 (8.66-12.1)	15.6 (12.3-17.6)	1229
	13-14	3.00 (2.72-3.31)	2.74 (2.47-3.06)	5.16 (4.51-5.69)	9.60 (8.10-11.7)	15.4 (12.7-17.7)	1400
Race/ethnicity							
Mexican Americans	11-12	2.50 (2.21-2.83)	2.18 (2.02-2.42)	3.73 (3.00-4.38)	8.00 (5.46-10.7)	13.2 (8.49-18.8)	316
	13-14	2.53 (2.32-2.76)	2.39 (2.31-2.58)	3.75 (3.51-4.13)	6.80 (5.61-7.89)	9.44 (7.65-11.5)	438
Non-Hispanic blacks	11-12	2.35 (2.19-2.53)	2.20 (2.06-2.39)	3.99 (3.56-4.38)	6.95 (6.17-8.18)	12.1 (9.30-15.7)	665
	13-14	2.25 (2.11-2.41)	2.10 (1.93-2.37)	3.68 (3.26-4.29)	7.27 (6.21-8.16)	11.6 (8.69-15.3)	609
Non-Hispanic whites	11-12	3.09 (2.75-3.47)	2.75 (2.36-3.25)	5.05 (4.35-5.89)	10.4 (8.08-12.3)	15.3 (11.9-17.6)	811
	13-14	3.03 (2.80-3.28)	2.86 (2.61-3.08)	5.07 (4.43-5.65)	9.51 (8.19-11.1)	15.4 (12.5-17.7)	987
All Hispanics	11-12	2.54 (2.37-2.73)	2.25 (2.06-2.42)	3.92 (3.54-4.41)	8.20 (6.72-9.71)	13.9 (10.0-16.8)	571
	13-14	2.63 (2.45-2.82)	2.47 (2.37-2.60)	4.01 (3.70-4.57)	7.50 (6.78-8.85)	11.5 (8.85-14.1)	690
Asians	11-12	2.09 (1.76-2.49)	1.95 (1.70-2.19)	3.75 (3.04-4.44)	6.36 (5.53-7.89)	9.02 (7.50-17.9)	352
	13-14	2.29 (1.97-2.67)	1.91 (1.69-2.27)	4.10 (3.24-5.38)	8.89 (5.46-19.2)	19.2 (8.50-41.1)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiDP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	5.39 (<LOD-21.3)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.00)	2605
	05-06	*	< LOD	< LOD	1.69 (<LOD-2.00)	3.54 (2.31-6.16)	2548
	07-08	*	< LOD	< LOD	1.54 (<LOD-1.69)	3.08 (2.16-4.16)	2604
	09-10	*	< LOD	1.80 (1.49-2.13)	5.62 (4.48-7.28)	14.6 (10.7-18.3)	2749
Age group							
6-11 years	99-00	*	< LOD	< LOD	< LOD	9.55 (<LOD-34.7)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	1.54 (<LOD-2.31)	2.62 (1.85-4.77)	342
	05-06	*	< LOD	< LOD	1.69 (<LOD-2.00)	2.16 (2.00-2.62)	356
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.00)	2.16 (1.54-3.85)	389
	09-10	*	< LOD	1.72 (1.09-2.94)	5.30 (3.08-8.98)	13.1 (5.33-21.5)	415
12-19 years	99-00	*	< LOD	< LOD	< LOD	3.54 (<LOD-31.3)	752
	01-02	*	< LOD	< LOD	< LOD	1.39 (<LOD-1.69)	742
	03-04	*	< LOD	< LOD	< LOD	2.16 (<LOD-2.77)	729
	05-06	*	< LOD	< LOD	2.16 (<LOD-4.31)	5.39 (2.00-12.2)	702
	07-08	*	< LOD	< LOD	2.46 (1.39-5.39)	5.54 (2.46-8.01)	401
	09-10	*	< LOD	2.20 (1.42-3.96)	10.7 (4.87-17.1)	20.6 (14.8-36.1)	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	4.77 (<LOD-20.3)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.00)	3.54 (2.16-6.47)	1490
	07-08	*	< LOD	< LOD	1.39 (<LOD-1.69)	2.77 (1.85-3.85)	1814
	09-10	*	< LOD	1.76 (1.43-2.11)	5.44 (4.31-6.64)	12.9 (8.32-17.9)	1914
Gender							
Males	99-00	*	< LOD	< LOD	< LOD	7.55 (<LOD-29.1)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.77)	1250
	05-06	*	< LOD	< LOD	2.00 (1.39-2.93)	4.00 (3.23-6.31)	1270
	07-08	*	< LOD	< LOD	1.54 (<LOD-2.16)	3.23 (2.31-4.93)	1294
	09-10	*	< LOD	2.06 (1.74-2.68)	7.19 (5.62-10.5)	17.1 (11.7-27.6)	1399
Females	99-00	*	< LOD	< LOD	< LOD	3.85 (<LOD-10.5)	1326
	01-02	*	< LOD	< LOD	< LOD	1.39 (<LOD-1.69)	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	1.39 (<LOD-1.54)	2.62 (1.85-4.31)	1278
	07-08	*	< LOD	< LOD	1.39 (<LOD-1.69)	2.77 (2.00-3.70)	1310
	09-10	*	< LOD	1.52 (1.12-1.91)	4.70 (3.80-5.47)	12.3 (6.61-16.5)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.23, 1.23, 1.54, 1.23, 1.23, and 0.77 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	2.31 (<LOD-4.31)	814
	01-02	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.16)	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.00)	4.31 (2.00-8.62)	637
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.93)	3.08 (2.00-3.85)	531
	09-10	*	< LOD	1.52 (1.19-1.91)	5.11 (3.77-7.67)	12.9 (6.27-22.2)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.54 (<LOD-21.3)	10.5 (<LOD-46.5)	603
	01-02	*	< LOD	< LOD	< LOD	1.54 (<LOD-2.62)	703
	03-04	*	< LOD	< LOD	< LOD	2.00 (1.54-3.08)	699
	05-06	*	< LOD	< LOD	2.00 (1.54-2.77)	5.70 (3.54-8.62)	678
	07-08	*	< LOD	< LOD	1.69 (<LOD-2.31)	3.70 (2.16-5.70)	597
	09-10	*	< LOD	2.14 (1.79-2.56)	6.05 (4.48-10.5)	17.1 (8.32-21.9)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	5.39 (<LOD-24.6)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	1.54 (<LOD-2.16)	3.23 (1.85-6.47)	1038
	07-08	*	< LOD	< LOD	1.39 (<LOD-2.00)	2.77 (1.69-4.93)	1077
	09-10	*	< LOD	1.83 (1.40-2.53)	5.67 (4.59-8.07)	14.7 (10.3-21.5)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.23, 1.23, 1.54, 1.23, 1.23, and 0.77 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (2011 – 2014)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.800 (.600-.900)	2.60 (2.00-3.20)	8.80 (6.80-12.5)	18.6 (13.3-28.3)	2489
	13-14	*	< LOD	1.80 (1.60-2.10)	5.70 (4.60-7.00)	12.3 (9.10-16.3)	2685
Age group							
6-11 years	11-12	*	.700 (<LOD-1.10)	1.90 (1.50-2.50)	4.40 (2.50-6.20)	6.20 (4.40-11.4)	396
	13-14	*	< LOD	2.10 (1.70-3.00)	6.50 (4.10-10.1)	11.0 (8.70-17.9)	409
12-19 years	11-12	1.36 (1.12-1.65)	.900 (.800-1.20)	2.80 (2.20-4.00)	13.1 (5.90-23.4)	24.9 (17.8-90.6)	388
	13-14	*	< LOD	2.80 (1.60-3.70)	8.80 (5.00-16.3)	17.6 (8.70-25.5)	462
20 years and older	11-12	*	.700 (.600-.800)	2.70 (2.00-3.40)	9.60 (7.30-13.0)	18.4 (13.1-32.1)	1705
	13-14	*	< LOD	1.70 (1.40-2.10)	5.10 (4.10-6.70)	11.8 (8.80-15.8)	1814
Gender							
Males	11-12	1.26 (1.12-1.42)	.900 (.800-1.10)	3.10 (2.60-3.70)	9.30 (7.20-12.8)	20.0 (12.5-39.6)	1259
	13-14	*	< LOD	1.90 (1.50-2.50)	6.50 (4.60-7.40)	12.3 (7.70-17.6)	1285
Females	11-12	*	.700 (<LOD-.800)	2.10 (1.70-2.80)	8.20 (4.50-14.4)	18.4 (14.9-26.9)	1230
	13-14	*	< LOD	1.70 (1.40-2.10)	5.50 (4.20-7.70)	12.6 (8.70-17.9)	1400
Race/ethnicity							
Mexican Americans	11-12	*	.700 (<LOD-1.10)	2.30 (1.50-3.20)	5.30 (3.70-7.70)	16.8 (5.60-31.2)	316
	13-14	*	< LOD	1.50 (1.00-2.00)	5.00 (3.90-7.60)	10.1 (6.60-13.4)	438
Non-Hispanic blacks	11-12	1.40 (1.19-1.65)	1.00 (.900-1.20)	3.20 (2.40-4.30)	13.1 (7.70-19.5)	24.1 (15.3-36.8)	665
	13-14	*	< LOD	2.20 (1.60-2.90)	6.80 (4.30-9.20)	14.3 (8.70-18.4)	609
Non-Hispanic whites	11-12	*	.700 (<LOD-.900)	2.60 (1.90-3.40)	9.20 (6.30-12.6)	17.5 (13.0-33.5)	813
	13-14	*	< LOD	1.70 (1.40-2.10)	5.40 (4.10-7.10)	11.3 (8.70-15.8)	987
All Hispanics	11-12	*	.800 (.600-1.00)	2.40 (1.80-3.30)	6.20 (4.40-9.30)	17.9 (10.4-24.9)	571
	13-14	*	< LOD	1.80 (1.40-2.60)	5.80 (4.70-8.80)	13.1 (8.70-18.5)	690
Asians	11-12	*	.700 (<LOD-.800)	2.30 (1.40-3.60)	6.50 (5.30-9.80)	19.1 (7.80-25.9)	352
	13-14	*	< LOD	1.70 (1.20-2.20)	3.80 (2.80-6.50)	7.90 (4.80-19.6)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.6 and 0.9, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	< LOD	6.61 (<LOD-12.8)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	4.50 (<LOD-4.90)	2605
	05-06	*	< LOD	< LOD	3.20 (<LOD-3.82)	5.16 (3.99-5.67)	2548
	07-08	*	< LOD	< LOD	3.35 (<LOD-3.96)	5.05 (4.15-6.22)	2604
	09-10	*	< LOD	2.16 (1.91-2.41)	5.40 (4.21-7.00)	11.8 (9.59-14.2)	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	< LOD	9.24 (<LOD-21.9)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	3.71 (<LOD-4.82)	5.04 (3.71-7.19)	342
	05-06	*	< LOD	< LOD	2.37 (<LOD-2.93)	3.03 (2.54-5.16)	356
	07-08	*	< LOD	< LOD	3.35 (<LOD-5.33)	5.33 (3.11-7.26)	389
	09-10	*	< LOD	2.53 (1.93-3.09)	6.61 (3.77-9.73)	10.7 (6.70-21.7)	415
12-19 years	99-00	*	< LOD	< LOD	< LOD	3.08 (<LOD-11.8)	752
	01-02	*	< LOD	< LOD	< LOD	3.19 (<LOD-5.13)	742
	03-04	*	< LOD	< LOD	< LOD	3.03 (<LOD-3.99)	729
	05-06	*	< LOD	< LOD	2.66 (<LOD-3.59)	3.99 (2.97-5.28)	702
	07-08	*	< LOD	< LOD	2.56 (2.10-3.23)	3.68 (2.90-6.84)	401
	09-10	*	< LOD	2.14 (1.40-3.40)	7.58 (4.06-11.2)	13.2 (10.2-23.4)	420
20 years and older	99-00	*	< LOD	< LOD	< LOD	7.11 (<LOD-12.4)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	3.37 (<LOD-4.19)	5.17 (4.17-6.11)	1490
	07-08	*	< LOD	< LOD	3.48 (<LOD-4.15)	5.45 (4.15-6.39)	1814
	09-10	*	< LOD	2.12 (1.86-2.35)	5.00 (3.91-6.67)	11.7 (8.29-14.5)	1914
Gender Males	99-00	*	< LOD	< LOD	< LOD	6.53 (<LOD-15.7)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	3.56 (<LOD-4.54)	1250
	05-06	*	< LOD	< LOD	2.51 (1.96-3.51)	3.99 (2.79-5.61)	1270
	07-08	*	< LOD	< LOD	2.42 (<LOD-2.95)	3.96 (3.23-5.05)	1294
	09-10	*	< LOD	1.91 (1.59-2.37)	5.54 (4.14-7.89)	12.9 (9.90-18.8)	1399
Females	99-00	*	< LOD	< LOD	< LOD	6.61 (<LOD-11.8)	1326
	01-02	*	< LOD	< LOD	< LOD	4.20 (<LOD-4.40)	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	3.67 (<LOD-4.39)	5.37 (4.88-6.27)	1278
	07-08	*	< LOD	< LOD	4.08 (<LOD-4.84)	5.81 (4.36-7.26)	1310
	09-10	*	< LOD	2.35 (2.01-2.49)	5.40 (4.13-7.00)	10.8 (7.58-14.9)	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (1999 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	< LOD	5.44 (<LOD-7.70)	814
	01-02	*	< LOD	< LOD	< LOD	3.70 (<LOD-4.20)	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	2.71 (<LOD-3.73)	4.88 (3.73-6.27)	637
	07-08	*	< LOD	< LOD	2.81 (<LOD-3.23)	3.96 (3.23-5.13)	531
	09-10	*	< LOD	1.74 (1.42-2.35)	4.35 (3.10-9.92)	11.5 (8.42-19.1)	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.13 (<LOD-8.18)	6.61 (<LOD-22.1)	603
	01-02	*	< LOD	< LOD	< LOD	2.71 (<LOD-3.30)	703
	03-04	*	< LOD	< LOD	< LOD	3.37 (2.57-3.85)	699
	05-06	*	< LOD	< LOD	2.22 (1.83-2.59)	4.39 (2.83-6.75)	678
	07-08	*	< LOD	< LOD	2.49 (<LOD-3.35)	4.19 (3.11-4.62)	597
	09-10	*	< LOD	1.51 (1.25-1.80)	4.00 (2.90-5.61)	8.97 (5.15-15.1)	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	< LOD	8.39 (<LOD-15.4)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	3.37 (<LOD-3.99)	4.88 (3.99-5.41)	1038
	07-08	*	< LOD	< LOD	3.60 (<LOD-4.15)	5.45 (3.96-6.96)	1077
	09-10	*	< LOD	2.41 (2.08-2.70)	6.00 (4.23-8.05)	12.9 (10.4-16.6)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.54 for survey periods 1999-2008 compared with results previously reported

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-isononyl phthalate (MiNP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.08 (.921-1.25)	2.69 (2.25-3.26)	7.88 (5.88-11.3)	17.6 (11.6-26.6)	2487
	13-14	*	< LOD	2.29 (1.98-2.50)	5.39 (4.83-6.00)	9.64 (8.34-11.7)	2684
Age group							
6-11 years	11-12	*	1.13 (<LOD-1.40)	2.44 (1.84-2.98)	4.20 (3.27-7.88)	7.88 (4.00-15.2)	395
	13-14	*	< LOD	3.17 (2.47-4.07)	7.14 (5.11-13.2)	14.3 (7.81-17.0)	409
12-19 years	11-12	1.33 (1.05-1.68)	1.01 (.818-1.40)	2.72 (1.94-3.89)	10.6 (4.63-17.6)	33.0 (11.8-53.5)	388
	13-14	*	< LOD	2.18 (1.60-3.22)	7.33 (4.74-9.72)	11.7 (7.73-22.4)	462
20 years and older	11-12	*	1.09 (.876-1.30)	2.78 (2.22-3.33)	8.23 (5.95-11.4)	18.1 (11.4-33.8)	1704
	13-14	*	< LOD	2.21 (1.94-2.46)	4.92 (3.97-6.01)	8.97 (7.29-11.4)	1813
Gender							
Males	11-12	1.18 (1.04-1.33)	.982 (.778-1.16)	2.50 (2.15-3.06)	7.88 (5.65-11.4)	15.6 (10.1-24.1)	1258
	13-14	*	< LOD	1.84 (1.64-2.13)	4.34 (3.27-6.57)	8.69 (6.81-11.7)	1284
Females	11-12	*	1.21 (<LOD-1.40)	2.86 (2.18-3.88)	7.73 (5.20-13.0)	20.1 (11.4-33.8)	1229
	13-14	*	< LOD	2.56 (2.29-2.82)	5.95 (4.83-7.29)	11.7 (8.28-16.1)	1400
Race/ethnicity							
Mexican Americans	11-12	*	.942 (<LOD-1.13)	2.04 (1.65-2.50)	4.68 (3.19-13.8)	17.1 (8.39-42.6)	316
	13-14	*	< LOD	1.82 (1.39-2.75)	4.42 (2.79-8.39)	9.41 (5.40-12.1)	438
Non-Hispanic blacks	11-12	1.09 (.915-1.29)	.896 (.750-1.05)	2.31 (1.73-3.33)	7.45 (5.19-10.7)	15.2 (9.60-22.5)	665
	13-14	*	< LOD	1.78 (1.39-2.37)	5.08 (3.72-6.67)	8.86 (7.29-10.6)	609
Non-Hispanic whites	11-12	*	1.15 (<LOD-1.38)	3.06 (2.35-3.60)	8.23 (5.91-11.9)	20.1 (11.4-33.8)	811
	13-14	*	< LOD	2.37 (2.00-2.67)	5.20 (4.23-6.25)	9.20 (7.50-13.2)	987
All Hispanics	11-12	*	1.02 (.875-1.20)	2.18 (1.90-2.46)	6.67 (4.00-9.25)	14.9 (10.1-29.7)	571
	13-14	*	< LOD	2.00 (1.56-2.79)	5.45 (4.21-8.00)	11.7 (8.00-14.9)	690
Asians	11-12	*	1.21 (<LOD-1.49)	2.70 (2.00-3.50)	6.75 (4.62-10.1)	14.9 (8.75-21.5)	352
	13-14	*	< LOD	2.37 (1.86-3.05)	5.88 (3.56-8.66)	11.4 (7.39-22.2)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (2005 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	5.39 (4.68-6.22)	5.10 (4.40-6.00)	10.9 (9.10-13.1)	25.5 (19.1-35.4)	54.4 (32.5-85.2)	2548
	07-08	6.79 (5.83-7.92)	6.40 (5.60-7.40)	14.9 (12.1-18.2)	34.6 (25.2-43.8)	63.0 (41.8-80.0)	2604
	09-10	12.6 (10.4-15.2)	11.8 (9.26-14.7)	33.1 (25.8-40.2)	83.3 (61.2-113)	160 (117-191)	2749
Age group							
6-11 years	05-06	8.52 (7.19-10.1)	8.90 (7.60-9.90)	15.0 (11.3-19.3)	26.4 (19.9-37.3)	40.3 (26.4-61.6)	356
	07-08	10.8 (9.25-12.6)	10.7 (9.10-13.1)	19.8 (15.8-24.5)	33.8 (26.1-50.3)	59.9 (33.5-79.5)	389
	09-10	15.0 (10.8-20.7)	14.2 (9.15-20.7)	34.7 (18.6-56.5)	74.6 (41.6-135)	120 (74.6-340)	415
12-19 years	05-06	6.61 (5.42-8.06)	6.30 (5.20-7.30)	11.9 (9.60-16.0)	28.4 (18.2-58.7)	63.2 (28.4-106)	702
	07-08	9.25 (7.33-11.7)	8.10 (6.80-10.3)	20.8 (15.4-28.7)	60.5 (29.6-79.4)	79.4 (49.7-166)	401
	09-10	16.1 (12.3-20.9)	14.5 (11.6-17.0)	39.8 (22.5-61.2)	96.8 (66.7-191)	209 (135-263)	420
20 years and older	05-06	4.96 (4.27-5.76)	4.50 (3.90-5.20)	9.70 (8.20-12.3)	25.1 (18.2-35.7)	54.4 (30.8-88.5)	1490
	07-08	6.15 (5.20-7.29)	5.80 (5.00-6.60)	13.2 (10.5-16.8)	32.0 (23.0-41.8)	61.2 (38.9-80.0)	1814
	09-10	11.9 (9.89-14.3)	11.0 (8.58-13.7)	32.1 (25.8-39.0)	83.7 (56.0-114)	158 (109-188)	1914
Gender							
Males	05-06	6.24 (5.25-7.42)	5.70 (4.70-6.90)	12.1 (10.2-15.1)	30.8 (19.0-58.8)	66.4 (33.8-122)	1270
	07-08	7.14 (6.10-8.36)	6.60 (5.70-7.70)	15.6 (12.4-19.3)	35.7 (24.7-43.2)	61.2 (40.1-89.1)	1294
	09-10	14.0 (11.6-16.8)	13.4 (10.5-15.6)	36.0 (27.5-45.9)	92.9 (66.1-134)	168 (111-217)	1399
Females	05-06	4.69 (4.14-5.30)	4.50 (4.00-5.20)	9.30 (8.20-11.1)	21.5 (17.5-27.0)	41.7 (28.1-61.7)	1278
	07-08	6.48 (5.49-7.65)	6.20 (5.40-7.40)	14.3 (12.0-17.0)	32.6 (24.8-47.0)	64.8 (47.0-73.3)	1310
	09-10	11.4 (9.17-14.1)	10.6 (8.05-13.7)	29.6 (20.8-38.4)	70.4 (50.1-113)	146 (85.2-188)	1350
Race/ethnicity							
Mexican Americans	05-06	5.77 (4.84-6.87)	5.20 (4.50-5.70)	9.90 (8.50-12.0)	23.6 (14.9-49.7)	54.4 (23.0-185)	637
	07-08	6.83 (6.23-7.49)	6.20 (5.60-6.80)	12.9 (11.3-14.9)	29.1 (25.2-33.8)	52.0 (36.8-61.2)	531
	09-10	9.96 (7.99-12.4)	8.59 (6.21-12.1)	20.3 (15.8-32.6)	59.3 (44.0-69.5)	86.2 (63.2-136)	566
Non-Hispanic blacks	05-06	6.08 (5.60-6.61)	6.00 (5.10-6.70)	11.4 (10.4-13.0)	24.5 (20.3-28.1)	50.0 (32.0-70.3)	678
	07-08	7.55 (6.21-9.17)	7.00 (6.00-8.00)	16.6 (12.0-22.9)	40.3 (25.5-51.9)	60.4 (41.8-97.8)	597
	09-10	12.6 (9.85-16.1)	11.0 (7.35-16.2)	34.5 (26.5-42.1)	82.4 (63.8-109)	137 (83.3-188)	516
Non-Hispanic whites	05-06	5.25 (4.40-6.27)	5.00 (4.10-6.20)	11.1 (8.60-13.6)	25.5 (17.7-43.5)	56.1 (28.1-88.5)	1038
	07-08	6.81 (5.48-8.46)	6.40 (5.20-7.90)	15.1 (11.0-20.8)	35.7 (23.2-62.0)	64.7 (39.4-89.0)	1077
	09-10	13.4 (10.7-16.8)	12.9 (10.1-16.1)	34.8 (27.5-43.4)	88.9 (64.4-136)	168 (113-220)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 05-06, 07-08, and 09-10 are 0.7, 0.7, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (2011 – 2014)

Metabolite of Di-isononyl phthalates (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	19.7 (17.4-22.3)	18.7 (15.6-21.3)	50.0 (43.0-61.8)	123 (98.3-160)	214 (180-275)	2489
	13-14	21.3 (19.5-23.3)	19.8 (17.8-21.5)	54.8 (48.1-58.9)	136 (122-159)	247 (213-272)	2685
Age group							
6-11 years	11-12	18.3 (15.7-21.4)	17.0 (14.7-19.8)	35.2 (30.2-46.4)	88.2 (63.1-108)	144 (90.7-249)	396
	13-14	27.6 (22.9-33.1)	26.4 (18.7-36.1)	60.8 (51.1-82.1)	150 (110-209)	272 (152-428)	409
12-19 years	11-12	21.7 (17.2-27.3)	20.7 (16.0-25.8)	51.4 (35.9-68.0)	160 (80.4-261)	289 (174-421)	388
	13-14	28.1 (23.6-33.4)	23.8 (18.7-32.4)	75.7 (54.2-99.3)	167 (137-184)	286 (167-612)	462
20 years and older	11-12	19.6 (17.0-22.6)	18.6 (14.7-21.5)	51.4 (43.4-66.1)	127 (103-165)	199 (178-273)	1705
	13-14	19.9 (18.1-21.9)	18.2 (16.9-20.4)	50.4 (43.2-56.9)	131 (109-150)	239 (211-260)	1814
Gender							
Males	11-12	22.8 (19.9-26.1)	20.2 (16.6-22.1)	59.8 (50.0-67.5)	155 (120-184)	255 (184-379)	1259
	13-14	23.4 (20.5-26.6)	21.0 (18.2-23.4)	57.0 (47.7-70.9)	142 (122-184)	256 (215-293)	1285
Females	11-12	17.1 (14.7-19.9)	16.3 (13.5-20.4)	43.3 (35.3-58.6)	103 (75.4-138)	180 (119-259)	1230
	13-14	19.5 (17.4-21.9)	18.5 (15.8-21.4)	49.1 (41.7-57.1)	128 (108-164)	239 (180-262)	1400
Race/ethnicity							
Mexican Americans	11-12	17.1 (14.8-19.9)	14.4 (11.5-20.5)	38.1 (33.9-46.6)	96.7 (70.3-133)	174 (98.9-251)	316
	13-14	17.7 (15.2-20.6)	15.7 (11.6-22.1)	39.9 (27.4-53.1)	100 (63.2-117)	131 (115-184)	438
Non-Hispanic blacks	11-12	24.1 (21.0-27.5)	22.4 (19.0-25.1)	58.2 (45.7-75.9)	165 (102-220)	273 (206-306)	665
	13-14	22.0 (18.9-25.5)	20.4 (16.9-24.1)	51.4 (41.6-59.6)	126 (80.9-158)	208 (136-322)	609
Non-Hispanic whites	11-12	20.1 (17.2-23.4)	19.5 (15.6-21.8)	52.8 (43.1-68.0)	123 (94.0-166)	196 (166-275)	813
	13-14	22.0 (19.6-24.8)	20.6 (17.7-22.8)	56.9 (47.9-66.8)	144 (122-180)	251 (211-272)	987
All Hispanics	11-12	18.5 (15.3-22.2)	15.8 (11.9-21.1)	42.3 (35.3-55.1)	104 (77.9-153)	221 (133-297)	571
	13-14	20.0 (17.2-23.2)	18.0 (13.7-23.5)	49.4 (39.1-57.1)	115 (79.7-147)	200 (139-293)	690
Asians	11-12	12.2 (10.0-14.8)	11.0 (8.40-13.8)	36.7 (25.6-47.1)	81.9 (66.1-127)	135 (91.9-204)	352
	13-14	14.9 (11.5-19.3)	12.6 (9.80-19.7)	43.7 (35.6-52.6)	140 (71.3-183)	193 (156-287)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.3, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (creatinine corrected) (2005 – 2010)

Metabolite of Di-isononyl phthalate (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	5.26 (4.54-6.10)	4.53 (3.95-5.11)	9.25 (7.64-11.2)	24.0 (17.1-30.8)	40.2 (30.3-55.2)	2548
	07-08	6.85 (6.05-7.75)	5.94 (5.19-6.67)	12.6 (10.8-14.4)	30.6 (23.4-38.5)	50.2 (40.0-60.0)	2604
	09-10	13.1 (11.1-15.5)	11.6 (9.69-13.8)	29.3 (23.7-36.2)	72.3 (55.0-93.8)	119 (89.1-147)	2749
Age group							
6-11 years	05-06	9.38 (8.08-10.9)	8.48 (7.66-10.1)	14.8 (12.2-18.7)	30.3 (20.0-38.8)	40.1 (28.2-57.3)	356
	07-08	13.3 (11.4-15.5)	11.6 (9.90-14.2)	23.1 (16.2-32.5)	44.2 (27.0-64.1)	60.3 (44.2-110)	389
	09-10	19.5 (14.7-25.9)	18.6 (11.7-26.9)	35.9 (25.7-56.9)	87.8 (43.7-132)	139 (80.1-312)	415
12-19 years	05-06	4.93 (4.10-5.93)	4.32 (3.61-4.89)	7.44 (5.93-11.0)	19.4 (12.4-31.8)	34.7 (24.1-58.3)	702
	07-08	7.20 (5.94-8.73)	6.28 (4.79-8.08)	12.6 (10.0-20.7)	32.7 (22.6-56.9)	56.9 (31.4-103)	401
	09-10	12.9 (10.5-15.8)	11.5 (8.38-15.1)	26.3 (19.2-37.9)	74.8 (43.5-120)	125 (101-167)	420
20 years and older	05-06	4.97 (4.26-5.81)	4.17 (3.68-4.77)	8.58 (7.23-10.6)	23.4 (15.5-31.8)	41.1 (29.2-55.9)	1490
	07-08	6.32 (5.49-7.27)	5.31 (4.77-6.05)	11.8 (9.27-13.9)	27.5 (19.5-36.8)	47.7 (34.4-60.9)	1814
	09-10	12.6 (10.7-14.8)	10.9 (9.42-12.7)	28.5 (23.3-35.9)	69.5 (52.5-89.4)	113 (81.9-153)	1914
Gender							
Males	05-06	5.01 (4.21-5.97)	4.29 (3.75-5.03)	8.44 (7.17-10.9)	21.6 (15.1-35.4)	44.6 (25.7-85.9)	1270
	07-08	6.01 (5.29-6.84)	5.14 (4.54-6.26)	11.5 (9.32-13.6)	24.5 (19.2-31.0)	43.2 (31.2-54.9)	1294
	09-10	12.5 (10.6-14.7)	11.4 (9.29-13.9)	28.6 (23.5-36.6)	67.2 (52.0-85.9)	106 (82.2-138)	1399
Females	05-06	5.51 (4.75-6.39)	4.73 (4.23-5.32)	9.55 (8.26-12.2)	24.7 (17.3-30.3)	39.3 (30.3-45.0)	1278
	07-08	7.76 (6.84-8.81)	6.52 (5.95-7.39)	13.7 (11.9-16.5)	35.3 (26.6-44.2)	57.7 (43.5-74.4)	1310
	09-10	13.7 (11.5-16.4)	11.8 (9.80-14.4)	29.5 (22.8-37.9)	75.3 (54.2-110)	123 (93.8-197)	1350
Race/ethnicity							
Mexican Americans	05-06	5.19 (4.38-6.14)	4.50 (3.64-5.29)	8.04 (7.13-10.1)	19.5 (12.3-37.7)	43.6 (20.9-93.4)	637
	07-08	6.66 (5.97-7.44)	5.29 (4.69-6.20)	11.6 (10.4-13.0)	25.7 (20.9-29.8)	38.3 (30.8-58.3)	531
	09-10	9.89 (7.75-12.6)	8.53 (6.98-10.0)	20.9 (12.8-28.3)	51.6 (34.2-72.3)	89.4 (59.3-125)	566
Non-Hispanic blacks	05-06	4.28 (3.86-4.74)	3.67 (3.26-4.09)	7.60 (6.80-8.81)	17.1 (13.2-21.5)	31.8 (22.5-43.7)	678
	07-08	5.87 (4.82-7.13)	5.37 (4.16-6.50)	11.1 (8.68-15.2)	28.1 (17.7-37.2)	40.2 (32.0-57.8)	597
	09-10	9.11 (7.52-11.0)	7.62 (5.84-10.8)	19.8 (15.5-26.5)	47.6 (36.9-57.7)	77.8 (57.0-104)	516
Non-Hispanic whites	05-06	5.53 (4.61-6.63)	4.81 (4.13-5.56)	10.0 (7.63-13.3)	25.2 (16.3-34.5)	39.3 (26.8-59.7)	1038
	07-08	7.11 (5.91-8.56)	6.27 (5.09-7.50)	13.0 (10.4-16.3)	31.1 (21.3-43.2)	54.2 (40.2-64.1)	1077
	09-10	15.1 (12.6-18.1)	13.5 (11.3-16.4)	33.6 (27.0-43.5)	79.2 (60.0-106)	126 (97.9-186)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(carboxyoctyl) phthalate (MCOP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-isononyl phthalates (DiNP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	22.4 (19.4-25.8)	20.4 (17.0-24.4)	54.1 (42.0-62.1)	118 (92.5-144)	194 (144-239)	2487
	13-14	21.4 (19.8-23.1)	19.5 (16.9-22.6)	46.5 (41.9-51.1)	123 (98.0-134)	196 (162-240)	2684
Age group							
6-11 years	11-12	25.9 (22.8-29.6)	22.1 (18.7-25.8)	42.3 (32.7-54.2)	116 (56.9-161)	161 (117-259)	395
	13-14	34.8 (29.6-40.9)	33.1 (24.4-42.8)	71.4 (51.4-94.7)	176 (104-254)	278 (176-412)	409
12-19 years	11-12	21.1 (16.6-26.9)	16.9 (13.7-20.2)	45.6 (28.8-63.4)	120 (73.7-209)	238 (117-396)	388
	13-14	22.8 (19.2-27.1)	21.7 (15.0-26.8)	50.8 (39.5-63.2)	140 (95.5-193)	208 (160-300)	462
20 years and older	11-12	22.2 (19.1-25.8)	20.8 (16.7-25.1)	55.3 (42.0-64.5)	118 (92.2-144)	194 (136-250)	1704
	13-14	20.1 (18.6-21.7)	18.3 (15.9-21.3)	43.2 (38.6-48.5)	111 (87.8-127)	181 (148-218)	1813
Gender							
Males	11-12	21.3 (18.9-23.9)	20.0 (16.1-23.2)	54.2 (45.8-58.8)	112 (90.3-144)	189 (136-222)	1258
	13-14	19.6 (17.7-21.8)	17.9 (15.1-21.9)	42.4 (37.0-51.2)	111 (86.6-125)	192 (133-245)	1284
Females	11-12	23.5 (19.4-28.5)	20.8 (16.6-26.2)	53.7 (38.3-68.5)	121 (86.8-156)	194 (135-290)	1229
	13-14	23.2 (20.3-26.5)	20.9 (17.4-24.1)	49.5 (42.5-60.8)	130 (95.7-166)	201 (164-268)	1400
Race/ethnicity							
Mexican Americans	11-12	19.3 (16.8-22.2)	16.3 (12.8-20.7)	35.7 (26.8-55.5)	81.9 (70.6-115)	136 (81.1-384)	316
	13-14	18.0 (14.7-22.1)	16.1 (12.4-22.6)	36.7 (29.3-45.7)	67.4 (53.3-108)	119 (81.4-152)	438
Non-Hispanic blacks	11-12	18.7 (16.5-21.3)	16.1 (14.1-19.6)	40.0 (32.6-51.6)	102 (76.4-134)	154 (132-201)	665
	13-14	16.2 (14.3-18.3)	14.3 (12.2-16.7)	36.6 (29.3-44.0)	86.6 (73.2-104)	128 (107-156)	609
Non-Hispanic whites	11-12	24.3 (20.4-29.0)	21.9 (18.1-27.5)	58.8 (48.3-71.3)	127 (101-161)	203 (146-284)	811
	13-14	23.2 (21.0-25.7)	22.0 (17.7-24.8)	50.0 (42.3-58.2)	127 (99.4-159)	205 (160-276)	987
All Hispanics	11-12	20.7 (18.0-23.7)	18.3 (15.5-21.7)	38.7 (31.2-53.0)	90.7 (79.3-117)	163 (121-276)	571
	13-14	19.8 (16.9-23.3)	18.1 (14.6-21.7)	42.6 (36.6-47.2)	87.8 (65.5-119)	186 (115-240)	690
Asians	11-12	16.3 (13.7-19.4)	16.5 (11.5-22.3)	37.5 (31.5-51.3)	71.8 (58.5-110)	121 (77.5-172)	352
	13-14	18.8 (15.1-23.4)	17.0 (11.5-23.1)	46.0 (34.8-67.3)	167 (81.3-215)	230 (172-383)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DiNP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.15 (.985-1.34)	1.50 (1.30-1.80)	3.30 (2.90-3.70)	6.00 (5.10-7.50)	9.80 (8.00-12.5)	2782
	03-04	*	1.30 (<LOD-1.70)	3.90 (3.00-4.90)	9.70 (7.70-12.2)	16.3 (12.0-20.4)	2605
	05-06	*	< LOD	2.50 (1.90-3.40)	7.40 (6.10-8.60)	12.4 (10.8-14.7)	2548
	07-08	*	< LOD	2.20 (1.80-2.70)	6.50 (4.70-8.30)	11.3 (8.40-16.3)	2604
	09-10	*	.940 (.670-1.21)	2.89 (2.51-3.28)	6.72 (5.76-8.16)	12.0 (9.29-15.3)	2749
Age group 6-11 years	01-02	1.45 (1.13-1.87)	1.90 (1.40-2.80)	4.00 (3.40-4.90)	7.20 (6.00-8.00)	11.8 (7.60-20.8)	393
	03-04	2.10 (1.67-2.63)	1.70 (1.20-2.40)	4.30 (2.80-6.40)	9.50 (6.40-18.8)	18.8 (9.40-33.4)	342
	05-06	*	< LOD	4.00 (3.30-4.80)	10.6 (7.40-13.4)	15.4 (10.6-30.6)	356
	07-08	*	1.20 (<LOD-1.60)	3.70 (3.00-5.30)	8.00 (6.50-8.70)	12.1 (8.30-35.8)	389
	09-10	2.13 (1.83-2.47)	2.36 (1.72-2.92)	4.83 (3.85-5.61)	10.8 (8.59-16.7)	22.3 (11.4-25.8)	415
12-19 years	01-02	1.59 (1.28-1.96)	2.10 (1.80-2.50)	3.90 (3.30-4.70)	8.50 (5.30-10.5)	13.0 (9.60-17.8)	742
	03-04	*	1.50 (1.00-2.20)	4.40 (3.00-7.00)	13.3 (7.40-20.9)	21.8 (17.8-31.5)	729
	05-06	*	< LOD	3.70 (2.70-4.60)	8.60 (7.00-9.50)	12.4 (9.30-20.7)	702
	07-08	*	< LOD	2.30 (1.70-3.20)	6.70 (4.20-8.90)	12.0 (7.90-17.4)	401
	09-10	1.45 (1.12-1.89)	1.37 (.870-1.98)	3.33 (2.76-4.53)	7.68 (5.27-11.7)	12.0 (7.33-19.6)	420
20 years and older	01-02	1.06 (.904-1.25)	1.40 (1.10-1.60)	3.10 (2.50-3.50)	5.60 (4.60-7.10)	9.20 (7.40-12.3)	1647
	03-04	*	1.20 (<LOD-1.50)	3.80 (2.80-4.90)	9.30 (7.10-11.8)	14.3 (10.8-19.9)	1534
	05-06	*	< LOD	2.20 (1.60-2.80)	6.90 (5.30-8.40)	11.9 (9.50-14.7)	1490
	07-08	*	< LOD	2.00 (1.60-2.50)	6.00 (4.20-8.30)	11.1 (8.10-17.3)	1814
	09-10	*	.750 (<LOD-1.02)	2.59 (2.19-2.90)	6.30 (5.22-7.60)	10.5 (8.49-14.2)	1914
Gender Males	01-02	1.17 (.962-1.43)	1.50 (1.30-1.90)	3.30 (2.90-4.00)	5.90 (4.80-7.90)	9.20 (7.10-13.5)	1371
	03-04	*	1.30 (1.00-1.80)	4.00 (3.20-5.20)	10.0 (7.30-13.5)	17.7 (11.8-20.4)	1250
	05-06	*	< LOD	2.40 (1.80-3.50)	7.40 (5.70-9.20)	13.4 (11.0-15.7)	1270
	07-08	*	< LOD	2.40 (1.80-3.20)	6.90 (4.70-8.70)	10.3 (8.20-17.2)	1294
	09-10	*	1.04 (.730-1.40)	2.92 (2.60-3.47)	6.53 (5.38-8.66)	11.4 (8.86-13.9)	1399
Females	01-02	1.13 (.973-1.31)	1.40 (1.10-1.70)	3.30 (2.80-3.70)	6.40 (5.00-7.80)	10.3 (8.20-16.2)	1411
	03-04	*	1.20 (<LOD-1.60)	3.60 (2.80-4.70)	9.50 (7.70-12.2)	15.3 (11.7-22.9)	1355
	05-06	*	< LOD	2.60 (1.80-3.40)	7.40 (5.10-9.30)	12.0 (9.30-16.0)	1278
	07-08	*	< LOD	2.10 (1.70-2.50)	6.20 (4.30-8.20)	12.0 (7.90-16.1)	1310
	09-10	*	.840 (.600-1.09)	2.81 (2.30-3.25)	6.81 (5.49-8.27)	13.5 (8.91-16.8)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 1.1, 1.1, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	1.21 (1.02-1.45)	1.60 (1.30-1.70)	3.30 (2.70-4.00)	5.60 (4.70-7.30)	8.60 (6.40-15.2)	677
	03-04	*	1.40 (1.10-1.80)	4.00 (2.50-6.30)	9.60 (7.30-13.4)	15.0 (11.4-18.8)	652
	05-06	*	< LOD	3.10 (2.20-4.30)	7.30 (5.90-9.40)	11.3 (8.50-18.0)	637
	07-08	*	< LOD	2.50 (1.30-3.70)	6.40 (4.20-11.1)	12.1 (6.80-16.3)	531
	09-10	1.36 (1.22-1.51)	1.26 (.970-1.53)	3.67 (2.97-4.16)	8.30 (6.51-9.24)	12.0 (9.36-18.2)	566
Non-Hispanic blacks	01-02	1.64 (1.37-1.98)	2.10 (1.70-2.70)	4.40 (3.60-5.10)	8.30 (6.20-10.1)	11.0 (9.50-13.4)	703
	03-04	2.16 (1.64-2.84)	1.70 (1.00-2.80)	5.10 (3.70-7.00)	11.4 (7.30-17.3)	17.8 (10.2-39.4)	699
	05-06	*	< LOD	3.70 (2.40-4.70)	8.20 (6.10-10.6)	13.0 (10.6-15.8)	678
	07-08	*	< LOD	2.40 (1.50-3.40)	6.10 (4.10-8.80)	10.6 (6.70-16.4)	597
	09-10	1.71 (1.32-2.21)	1.89 (1.33-2.66)	4.11 (3.38-5.12)	7.87 (5.90-12.5)	14.2 (8.47-17.0)	516
Non-Hispanic whites	01-02	1.08 (.906-1.29)	1.40 (1.10-1.70)	3.20 (2.50-3.60)	5.60 (4.70-6.70)	9.70 (7.10-14.0)	1216
	03-04	*	1.20 (<LOD-1.60)	3.60 (2.80-4.80)	9.70 (7.50-12.2)	16.5 (12.0-20.4)	1088
	05-06	*	< LOD	2.30 (1.70-2.80)	7.40 (5.50-8.80)	12.5 (10.4-15.0)	1038
	07-08	*	< LOD	2.10 (1.70-2.60)	6.80 (4.30-8.50)	11.2 (8.00-18.7)	1077
	09-10	*	.690 (<LOD-.930)	2.37 (1.95-2.85)	6.17 (5.23-8.04)	12.3 (8.97-15.9)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 1.0, 1.1, 1.1, and 0.5 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (2011 – 2012)‡

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.00 (.800-1.20)	3.00 (2.60-3.50)	7.00 (6.30-8.10)	11.8 (10.3-14.8)	2489
Age group							
6-11 years	11-12	2.33 (1.78-3.04)	2.20 (1.50-3.30)	6.40 (5.70-7.70)	15.6 (9.60-24.1)	27.7 (14.8-157)	396
12-19 years	11-12	1.41 (1.09-1.81)	1.10 (.800-1.70)	3.80 (2.20-6.00)	9.90 (5.90-14.0)	14.8 (10.4-28.4)	388
20 years and older	11-12	*	.800 (.600-1.10)	2.60 (2.30-2.90)	6.10 (4.90-6.90)	9.80 (8.60-11.7)	1705
Gender							
Males	11-12	1.34 (1.16-1.55)	1.20 (.900-1.60)	3.40 (2.80-4.10)	8.50 (6.90-9.10)	12.9 (10.1-18.6)	1259
Females	11-12	*	.800 (.600-.900)	2.50 (2.20-2.90)	6.30 (5.00-7.30)	10.5 (8.80-13.6)	1230
Race/ethnicity							
Mexican Americans	11-12	1.39 (1.10-1.76)	1.40 (1.00-1.80)	3.80 (2.50-5.40)	6.90 (5.00-9.40)	9.60 (6.90-14.5)	316
Non-Hispanic blacks	11-12	1.51 (1.30-1.77)	1.40 (1.10-1.60)	4.30 (3.10-5.20)	8.90 (6.80-13.0)	16.6 (9.90-24.8)	665
Non-Hispanic whites	11-12	*	.700 (<LOD-1.10)	2.50 (2.00-3.10)	6.30 (4.80-8.20)	10.7 (8.90-16.0)	813
All Hispanics	11-12	1.54 (1.27-1.87)	1.50 (1.20-1.90)	4.00 (2.90-5.70)	8.00 (5.90-10.7)	11.4 (9.40-14.8)	571
Asians	11-12	1.33 (1.13-1.57)	1.20 (.800-1.60)	3.50 (2.90-4.20)	7.50 (5.20-10.6)	14.1 (9.00-20.1)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	1.08 (.936-1.25)	1.33 (1.13-1.55)	2.62 (2.36-2.97)	5.00 (3.97-6.02)	8.00 (6.07-11.0)	2782
	03-04	*	1.53 (<LOD-1.79)	3.45 (2.76-4.37)	7.95 (5.83-11.8)	13.5 (11.3-18.1)	2605
	05-06	*	< LOD	2.85 (2.52-3.25)	6.53 (5.49-7.67)	12.2 (9.74-14.3)	2548
	07-08	*	< LOD	2.79 (2.31-3.25)	5.68 (4.77-7.36)	10.8 (8.00-13.6)	2604
	09-10	*	1.18 (1.03-1.38)	2.56 (2.29-2.92)	5.55 (4.81-6.54)	10.6 (7.70-13.1)	2749
Age group							
6-11 years	01-02	1.65 (1.28-2.14)	2.32 (1.72-2.86)	3.97 (3.27-4.71)	7.20 (5.99-9.41)	13.2 (7.60-22.5)	393
	03-04	2.22 (1.75-2.81)	1.88 (1.49-2.60)	4.96 (2.81-6.49)	9.67 (6.15-14.6)	16.2 (12.1-34.5)	342
	05-06	*	< LOD	4.59 (3.09-6.35)	11.0 (8.07-15.0)	18.6 (10.4-21.9)	356
	07-08	*	2.05 (<LOD-2.33)	4.56 (3.85-5.36)	9.06 (6.63-11.4)	13.6 (10.4-36.0)	389
	09-10	2.77 (2.44-3.15)	2.85 (2.46-3.29)	5.24 (4.34-6.18)	14.7 (9.87-16.6)	20.5 (14.7-27.7)	415
12-19 years	01-02	1.23 (1.01-1.48)	1.51 (1.32-1.82)	2.84 (2.52-3.33)	5.36 (3.68-6.39)	7.27 (5.64-11.4)	742
	03-04	*	1.34 (1.12-1.73)	3.19 (2.26-4.43)	7.84 (4.95-12.1)	13.3 (9.49-19.1)	729
	05-06	*	< LOD	2.80 (2.15-3.55)	5.65 (4.33-6.52)	12.4 (6.45-18.9)	702
	07-08	*	< LOD	2.00 (1.63-2.63)	4.32 (3.10-6.05)	7.25 (4.77-10.8)	401
	09-10	1.17 (.907-1.51)	1.18 (.930-1.49)	2.24 (1.81-2.62)	4.17 (3.09-6.47)	7.33 (4.56-15.9)	420
20 years and older	01-02	1.00 (.868-1.16)	1.21 (1.05-1.40)	2.44 (2.14-2.68)	4.53 (3.49-6.02)	7.72 (5.52-11.4)	1647
	03-04	*	1.52 (<LOD-1.79)	3.39 (2.69-4.31)	7.69 (5.40-11.8)	13.3 (10.1-18.9)	1534
	05-06	*	< LOD	2.76 (2.44-3.12)	6.09 (5.00-7.75)	11.2 (9.17-13.4)	1490
	07-08	*	< LOD	2.75 (2.26-3.25)	5.58 (4.33-7.59)	10.4 (7.09-14.8)	1814
	09-10	*	1.09 (<LOD-1.23)	2.34 (2.02-2.69)	5.16 (4.25-6.39)	9.53 (7.07-12.1)	1914
Gender							
Males	01-02	.954 (.794-1.15)	1.17 (1.02-1.40)	2.37 (2.03-2.75)	4.18 (3.45-5.64)	6.42 (4.94-9.59)	1371
	03-04	*	1.35 (1.15-1.52)	2.95 (2.26-4.09)	7.11 (5.00-10.2)	11.8 (9.05-13.3)	1250
	05-06	*	< LOD	2.19 (1.89-2.50)	5.03 (4.09-6.45)	10.2 (7.75-13.4)	1270
	07-08	*	< LOD	2.33 (1.92-2.88)	4.88 (3.85-7.25)	8.56 (6.25-13.8)	1294
	09-10	*	1.02 (.850-1.21)	2.49 (2.00-2.86)	5.23 (4.25-6.84)	9.51 (7.20-12.4)	1399
Females	01-02	1.21 (1.06-1.38)	1.45 (1.23-1.82)	2.87 (2.58-3.06)	5.56 (4.55-7.14)	10.0 (7.20-15.3)	1411
	03-04	*	1.83 (<LOD-2.10)	3.87 (3.04-4.96)	9.41 (6.41-13.6)	16.5 (12.5-23.5)	1355
	05-06	*	< LOD	3.47 (3.00-4.11)	7.67 (6.00-9.75)	13.2 (9.75-18.7)	1278
	07-08	*	< LOD	3.12 (2.72-3.71)	6.50 (5.20-8.67)	11.7 (8.56-14.8)	1310
	09-10	*	1.35 (1.16-1.57)	2.76 (2.34-3.18)	5.77 (4.94-7.22)	11.3 (8.29-15.5)	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2001 – 2010)

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	1.14 (.975-1.34)	1.48 (1.30-1.63)	2.50 (2.20-2.94)	4.19 (3.77-5.76)	8.47 (5.58-12.5)	677
	03-04	*	1.36 (1.15-1.71)	3.56 (2.45-4.90)	7.53 (5.62-9.64)	12.5 (9.44-16.9)	652
	05-06	*	< LOD	2.86 (2.07-3.67)	6.48 (4.21-8.24)	11.5 (6.94-21.7)	637
	07-08	*	< LOD	2.59 (2.06-3.39)	5.65 (3.60-8.13)	9.40 (6.06-13.9)	531
	09-10	1.35 (1.19-1.53)	1.37 (1.13-1.67)	3.13 (2.61-3.57)	6.18 (5.33-8.40)	10.7 (8.33-15.2)	566
Non-Hispanic blacks	01-02	1.15 (.949-1.40)	1.39 (1.29-1.67)	2.70 (2.36-2.95)	4.87 (4.21-5.93)	8.09 (5.86-11.0)	703
	03-04	1.53 (1.21-1.94)	1.40 (1.07-1.75)	3.14 (2.26-4.37)	7.50 (4.29-14.6)	13.7 (7.70-20.7)	699
	05-06	*	< LOD	2.59 (1.87-3.28)	5.20 (4.53-6.29)	8.50 (6.79-10.3)	678
	07-08	*	< LOD	2.10 (1.69-2.44)	4.22 (2.94-5.74)	7.36 (4.88-8.79)	597
	09-10	1.24 (.983-1.56)	1.35 (1.08-1.58)	2.69 (2.22-3.23)	4.94 (4.03-6.54)	8.18 (5.74-15.5)	516
Non-Hispanic whites	01-02	1.07 (.914-1.26)	1.30 (1.05-1.58)	2.62 (2.32-2.99)	5.22 (3.68-6.82)	8.26 (6.07-12.6)	1216
	03-04	*	1.56 (<LOD-1.89)	3.50 (2.71-4.67)	8.10 (6.00-11.9)	13.6 (11.3-18.9)	1088
	05-06	*	< LOD	2.98 (2.60-3.39)	7.19 (5.58-9.51)	13.4 (10.4-16.6)	1038
	07-08	*	< LOD	2.89 (2.26-3.67)	6.01 (4.63-8.57)	11.7 (7.47-15.6)	1077
	09-10	*	1.13 (<LOD-1.29)	2.48 (2.06-2.80)	5.38 (4.44-6.76)	10.9 (7.68-13.8)	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-methyl phthalate (MMP) (creatinine corrected) (2011 – 2012)‡

Metabolite of Dimethyl phthalate (DMP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.32 (1.16-1.49)	2.84 (2.52-3.24)	6.13 (5.42-7.43)	11.0 (9.44-12.9)	2487
Age group							
6-11 years	11-12	3.31 (2.57-4.25)	2.97 (2.14-3.89)	7.73 (5.56-8.53)	17.3 (12.4-24.2)	30.2 (17.3-171)	395
12-19 years	11-12	1.37 (1.12-1.68)	1.16 (.959-1.46)	2.86 (1.88-4.29)	7.68 (4.95-10.0)	12.2 (7.68-24.6)	388
20 years and older	11-12	*	1.26 (1.05-1.40)	2.57 (2.33-2.82)	5.29 (4.43-5.93)	9.31 (7.26-10.2)	1704
Gender							
Males	11-12	1.25 (1.09-1.44)	1.23 (.957-1.49)	2.74 (2.35-3.16)	5.88 (5.08-7.73)	10.0 (8.33-12.9)	1258
Females	11-12	*	1.38 (1.23-1.52)	2.92 (2.57-3.29)	6.17 (5.44-8.08)	12.2 (8.98-15.4)	1229
Race/ethnicity							
Mexican Americans	11-12	1.57 (1.19-2.06)	1.57 (1.06-2.14)	3.44 (2.44-5.26)	7.26 (4.28-12.2)	11.8 (7.39-22.4)	316
Non-Hispanic blacks	11-12	1.18 (1.01-1.38)	1.20 (.955-1.45)	2.64 (2.19-3.33)	6.50 (4.30-9.78)	11.1 (6.93-18.0)	665
Non-Hispanic whites	11-12	*	1.23 (<LOD-1.45)	2.52 (2.13-3.04)	5.75 (4.69-6.54)	10.0 (8.08-12.9)	811
All Hispanics	11-12	1.73 (1.44-2.08)	1.79 (1.48-2.14)	3.55 (2.82-4.89)	7.73 (5.54-10.9)	12.7 (8.51-19.8)	571
Asians	11-12	1.79 (1.52-2.10)	1.75 (1.50-2.07)	3.91 (3.49-4.37)	8.75 (6.61-10.3)	11.5 (10.0-15.0)	352

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DMP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.75 (2.49-3.04)	3.10 (2.80-3.30)	5.70 (5.10-6.40)	10.0 (8.90-11.3)	14.6 (12.7-17.5)	2782
	03-04	2.91 (2.79-3.04)	3.10 (3.00-3.30)	5.70 (5.20-6.10)	10.2 (9.20-11.8)	15.3 (13.8-16.2)	2605
	05-06	2.05 (1.87-2.26)	2.10 (1.90-2.40)	4.40 (4.00-4.80)	8.90 (7.60-10.1)	13.1 (10.6-17.4)	2548
	07-08	2.76 (2.52-3.04)	2.70 (2.50-3.00)	5.80 (5.20-6.50)	11.1 (9.70-13.1)	18.1 (15.4-22.3)	2604
	09-10	3.02 (2.58-3.53)	3.10 (2.57-3.65)	6.44 (5.44-7.70)	13.4 (11.4-16.5)	22.3 (19.5-26.2)	2749
Age group 6-11 years	01-02	6.11 (5.46-6.84)	6.70 (5.40-7.50)	11.8 (10.2-13.3)	20.1 (17.8-23.1)	24.7 (22.2-31.6)	393
	03-04	6.86 (5.80-8.11)	7.10 (6.00-8.90)	12.7 (10.4-16.4)	22.0 (17.2-27.7)	29.2 (22.3-36.6)	342
	05-06	4.82 (4.09-5.68)	4.90 (4.30-5.90)	8.50 (6.70-10.4)	13.1 (10.3-17.9)	17.9 (12.6-34.5)	356
	07-08	6.01 (4.80-7.53)	6.40 (5.10-8.00)	11.3 (8.40-15.9)	20.3 (13.2-27.3)	23.9 (19.1-34.1)	389
	09-10	4.54 (3.74-5.52)	4.86 (3.71-6.49)	9.08 (7.14-11.2)	14.4 (10.8-20.3)	20.3 (14.3-51.9)	415
12-19 years	01-02	3.71 (3.18-4.33)	4.00 (3.40-4.70)	7.10 (6.10-8.10)	11.5 (9.50-12.7)	14.1 (11.8-19.0)	742
	03-04	3.72 (3.33-4.15)	4.10 (3.50-4.60)	7.20 (5.80-8.40)	11.0 (9.50-13.6)	15.4 (13.4-17.9)	729
	05-06	2.96 (2.52-3.46)	3.10 (2.50-3.60)	5.90 (4.80-7.30)	11.8 (9.10-14.5)	17.0 (12.7-21.5)	702
	07-08	3.81 (3.15-4.61)	4.00 (3.20-4.70)	8.20 (6.90-9.40)	13.3 (11.1-17.1)	24.1 (13.8-25.6)	401
	09-10	3.65 (2.88-4.64)	3.74 (2.90-4.74)	7.16 (5.48-9.32)	15.9 (10.8-25.8)	32.3 (20.9-54.3)	420
20 years and older	01-02	2.37 (2.11-2.66)	2.60 (2.20-3.00)	4.80 (4.30-5.40)	8.10 (7.20-9.50)	12.0 (10.1-14.2)	1647
	03-04	2.53 (2.41-2.66)	2.80 (2.60-2.90)	4.90 (4.50-5.20)	8.10 (7.50-8.90)	13.2 (10.8-14.3)	1534
	05-06	1.76 (1.60-1.93)	1.70 (1.60-2.00)	3.60 (3.20-4.10)	7.10 (6.10-8.40)	11.3 (9.60-13.6)	1490
	07-08	2.41 (2.18-2.67)	2.50 (2.20-2.60)	5.00 (4.60-5.50)	9.60 (8.00-11.1)	15.6 (12.9-19.9)	1814
	09-10	2.80 (2.40-3.28)	2.88 (2.42-3.39)	6.00 (5.04-7.15)	13.1 (10.8-16.4)	21.8 (18.7-27.9)	1914
Gender Males	01-02	2.89 (2.64-3.17)	3.10 (2.80-3.40)	5.70 (5.00-6.80)	9.90 (8.70-12.0)	14.2 (12.4-18.1)	1371
	03-04	3.25 (3.01-3.52)	3.30 (3.00-3.60)	6.00 (5.60-6.80)	11.8 (10.1-13.6)	16.0 (14.2-20.0)	1250
	05-06	2.32 (2.11-2.54)	2.40 (2.00-2.70)	4.70 (4.30-5.20)	9.60 (7.90-11.8)	14.5 (11.5-22.3)	1270
	07-08	3.02 (2.70-3.39)	2.90 (2.60-3.30)	5.80 (5.10-6.60)	12.3 (10.1-15.3)	21.3 (16.7-28.5)	1294
	09-10	3.37 (2.86-3.96)	3.42 (2.91-4.04)	7.09 (6.04-8.32)	15.5 (12.9-18.7)	23.6 (19.9-33.0)	1399
Females	01-02	2.62 (2.29-2.99)	3.00 (2.50-3.30)	5.70 (5.00-6.30)	10.0 (8.50-11.5)	14.7 (11.2-20.3)	1411
	03-04	2.63 (2.44-2.83)	3.00 (2.60-3.20)	5.20 (4.70-5.80)	9.20 (8.20-10.3)	13.4 (11.0-16.2)	1355
	05-06	1.83 (1.59-2.10)	1.80 (1.60-2.10)	4.00 (3.30-4.60)	8.00 (6.60-9.50)	12.1 (9.50-14.7)	1278
	07-08	2.54 (2.30-2.79)	2.60 (2.30-3.00)	5.90 (5.00-6.80)	10.5 (9.10-12.3)	15.4 (13.3-21.5)	1310
	09-10	2.72 (2.29-3.22)	2.79 (2.25-3.40)	5.78 (4.67-7.20)	12.6 (9.86-15.9)	20.7 (15.9-29.7)	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	2.67 (2.26-3.16)	3.00 (2.30-3.50)	5.30 (4.40-5.90)	9.20 (7.30-12.4)	13.6 (10.4-18.7)	677
	03-04	3.08 (2.86-3.32)	3.10 (2.80-3.40)	5.50 (4.80-6.10)	9.90 (7.90-12.6)	13.7 (11.5-19.8)	652
	05-06	2.24 (1.71-2.94)	2.20 (1.60-3.10)	4.50 (3.30-6.50)	9.40 (6.50-13.1)	14.1 (9.90-25.4)	637
	07-08	2.66 (2.37-3.00)	2.70 (2.40-3.20)	5.00 (4.30-5.70)	8.80 (7.60-11.2)	14.5 (11.5-17.8)	531
	09-10	2.31 (1.95-2.74)	2.32 (1.92-2.93)	5.11 (4.44-5.58)	8.95 (7.39-11.3)	14.8 (11.1-23.2)	566
Non-Hispanic blacks	01-02	3.09 (2.81-3.40)	3.30 (2.90-3.60)	6.30 (5.50-6.50)	10.9 (9.10-13.0)	15.1 (13.5-22.4)	703
	03-04	3.30 (3.01-3.62)	3.20 (2.90-3.60)	6.10 (5.50-6.90)	11.6 (9.30-13.4)	20.1 (13.6-25.5)	699
	05-06	2.28 (2.03-2.57)	2.40 (2.10-2.80)	4.50 (3.80-5.60)	8.70 (7.10-10.3)	13.3 (10.4-16.5)	678
	07-08	2.94 (2.50-3.44)	2.90 (2.50-3.40)	5.80 (4.90-6.80)	12.2 (8.50-17.1)	21.1 (13.7-42.4)	597
	09-10	3.38 (2.66-4.31)	3.35 (2.49-4.56)	6.92 (5.86-8.97)	13.6 (10.2-21.0)	22.9 (17.9-28.7)	516
Non-Hispanic whites	01-02	2.72 (2.40-3.08)	3.00 (2.60-3.30)	5.80 (4.80-6.80)	10.3 (8.90-11.9)	15.8 (12.6-19.5)	1216
	03-04	2.87 (2.73-3.02)	3.10 (2.90-3.30)	5.60 (5.00-6.00)	10.1 (9.10-12.0)	15.2 (13.4-16.1)	1088
	05-06	1.97 (1.81-2.15)	2.00 (1.80-2.20)	4.20 (3.80-4.60)	8.70 (6.80-10.3)	13.1 (10.0-17.5)	1038
	07-08	2.84 (2.51-3.21)	2.90 (2.50-3.40)	6.10 (5.30-7.00)	11.4 (9.70-14.0)	18.1 (14.0-24.1)	1077
	09-10	3.17 (2.65-3.79)	3.16 (2.60-3.87)	6.86 (5.72-8.32)	14.5 (12.6-17.8)	23.6 (18.9-35.7)	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCP) (2011 – 2014)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.01 (2.59-3.50)	2.70 (2.40-3.10)	6.60 (5.60-7.90)	16.9 (13.1-23.1)	34.4 (21.3-51.8)	2489
	13-14	2.14 (1.97-2.32)	2.00 (1.80-2.20)	4.90 (4.40-5.30)	11.2 (9.60-13.0)	19.5 (16.5-22.3)	2685
Age group							
6-11 years	11-12	3.38 (2.87-3.97)	3.20 (2.70-4.10)	6.80 (5.50-8.50)	11.0 (9.40-14.1)	20.7 (13.7-34.2)	396
	13-14	3.11 (2.60-3.70)	3.10 (2.60-3.70)	5.60 (4.70-8.10)	13.0 (9.00-17.6)	21.2 (15.8-29.3)	409
12-19 years	11-12	3.26 (2.59-4.12)	3.00 (2.20-4.10)	6.80 (5.80-9.90)	22.2 (13.1-38.4)	45.0 (24.6-58.9)	388
	13-14	2.53 (2.13-3.02)	2.30 (1.90-3.10)	5.60 (4.30-7.10)	11.8 (7.40-22.5)	25.5 (11.8-58.6)	462
20 years and older	11-12	2.94 (2.46-3.50)	2.60 (2.30-3.00)	6.50 (5.40-7.70)	16.9 (12.8-23.5)	34.4 (19.8-56.3)	1705
	13-14	2.00 (1.83-2.20)	1.80 (1.70-2.00)	4.70 (4.00-5.20)	10.9 (9.30-12.7)	18.4 (15.8-21.3)	1814
Gender							
Males	11-12	3.52 (2.94-4.22)	2.80 (2.50-3.50)	7.30 (5.90-10.0)	18.7 (13.0-33.2)	48.0 (22.1-106)	1259
	13-14	2.37 (2.10-2.68)	2.20 (2.00-2.50)	5.10 (4.50-5.80)	11.9 (9.10-16.0)	20.8 (17.3-26.4)	1285
Females	11-12	2.58 (2.24-2.97)	2.50 (2.20-2.80)	6.00 (4.80-7.00)	15.5 (11.2-19.8)	27.8 (17.7-40.2)	1230
	13-14	1.94 (1.74-2.16)	1.80 (1.60-2.00)	4.70 (4.00-5.30)	10.4 (8.70-12.9)	17.5 (14.2-25.4)	1400
Race/ethnicity							
Mexican Americans	11-12	2.58 (2.12-3.13)	2.40 (2.10-2.80)	4.50 (3.60-6.00)	12.2 (6.60-22.2)	22.2 (12.2-50.7)	316
	13-14	1.75 (1.53-2.01)	1.90 (1.40-2.20)	3.70 (3.10-4.50)	7.60 (6.10-9.10)	14.6 (9.10-19.9)	438
Non-Hispanic blacks	11-12	3.55 (3.13-4.02)	3.00 (2.70-3.30)	6.80 (5.60-8.10)	19.7 (13.4-25.0)	30.9 (25.0-39.8)	665
	13-14	2.19 (1.88-2.54)	2.00 (1.80-2.50)	4.20 (3.60-5.10)	9.60 (6.40-16.4)	18.3 (11.0-30.0)	609
Non-Hispanic whites	11-12	3.03 (2.54-3.62)	2.80 (2.30-3.30)	6.70 (5.50-8.80)	16.9 (12.8-24.4)	37.2 (18.3-51.8)	813
	13-14	2.23 (2.03-2.43)	2.00 (1.90-2.30)	5.20 (4.80-5.80)	11.7 (10.3-14.5)	19.5 (16.1-25.4)	987
All Hispanics	11-12	2.79 (2.19-3.56)	2.40 (2.10-2.70)	5.70 (4.20-7.80)	16.3 (9.00-33.7)	35.1 (14.9-115)	571
	13-14	1.95 (1.68-2.27)	2.00 (1.60-2.30)	4.30 (3.70-4.80)	9.10 (6.70-14.6)	17.5 (9.50-27.4)	690
Asians	11-12	2.24 (1.66-3.01)	2.00 (1.50-2.60)	4.60 (3.60-6.90)	11.5 (7.70-25.7)	33.2 (11.5-74.3)	352
	13-14	1.40 (1.14-1.73)	1.30 (1.00-1.80)	2.90 (2.50-3.20)	5.80 (4.50-8.30)	13.5 (7.00-28.4)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.2 and 0.4, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.58 (2.35-2.83)	2.47 (2.25-2.76)	4.08 (3.87-4.48)	7.24 (6.58-8.00)	11.4 (10.0-12.5)	2782
	03-04	2.74 (2.56-2.93)	2.60 (2.42-2.79)	4.39 (3.94-4.86)	7.70 (6.65-8.60)	10.7 (9.53-11.9)	2605
	05-06	2.00 (1.82-2.20)	1.86 (1.67-2.06)	3.55 (3.14-4.00)	6.80 (5.77-7.95)	10.3 (8.68-12.7)	2548
	07-08	2.79 (2.63-2.96)	2.53 (2.37-2.70)	4.76 (4.33-5.16)	9.70 (8.52-10.9)	14.8 (12.7-17.0)	2604
	09-10	3.15 (2.77-3.59)	2.94 (2.55-3.38)	5.71 (4.88-6.72)	11.8 (10.5-13.5)	18.8 (16.0-21.9)	2749
Age group 6-11 years	01-02	6.96 (6.29-7.70)	7.08 (5.83-7.87)	11.2 (9.15-14.0)	20.7 (15.5-22.3)	26.4 (20.7-27.0)	393
	03-04	7.25 (6.43-8.18)	7.06 (5.93-7.59)	11.2 (9.38-12.4)	19.1 (14.4-25.6)	26.9 (19.3-29.0)	342
	05-06	5.31 (4.57-6.17)	5.06 (4.57-5.79)	8.78 (7.50-10.0)	13.7 (10.2-21.3)	21.3 (13.2-36.7)	356
	07-08	7.41 (5.87-9.34)	6.81 (5.50-9.05)	11.6 (9.43-14.1)	20.2 (12.7-39.2)	30.4 (16.5-68.9)	389
	09-10	5.92 (5.09-6.88)	5.94 (5.09-6.92)	9.47 (8.38-10.3)	15.5 (10.7-23.7)	22.7 (13.6-47.2)	415
12-19 years	01-02	2.86 (2.52-3.25)	2.94 (2.50-3.36)	4.59 (4.03-5.23)	6.69 (6.30-7.25)	9.55 (8.03-10.7)	742
	03-04	2.78 (2.54-3.05)	2.75 (2.53-2.99)	4.55 (4.05-5.15)	6.61 (6.15-7.20)	8.24 (7.00-10.2)	729
	05-06	2.20 (1.90-2.55)	2.07 (1.76-2.46)	3.67 (2.99-4.39)	6.84 (5.35-8.67)	9.67 (7.12-11.4)	702
	07-08	2.96 (2.59-3.38)	2.95 (2.51-3.62)	5.04 (4.33-6.00)	8.18 (6.75-10.4)	10.9 (9.38-15.1)	401
	09-10	2.94 (2.40-3.60)	2.67 (2.26-3.28)	4.68 (4.04-5.56)	10.8 (7.30-17.8)	21.4 (15.6-29.9)	420
20 years and older	01-02	2.24 (2.03-2.47)	2.20 (2.00-2.40)	3.51 (3.11-3.95)	5.39 (4.82-6.18)	7.71 (6.71-9.28)	1647
	03-04	2.43 (2.27-2.61)	2.38 (2.19-2.56)	3.70 (3.33-4.08)	6.09 (5.38-7.06)	8.79 (7.84-9.56)	1534
	05-06	1.76 (1.60-1.94)	1.67 (1.47-1.86)	2.96 (2.60-3.38)	5.55 (4.61-6.46)	8.46 (7.00-10.3)	1490
	07-08	2.48 (2.33-2.64)	2.26 (2.14-2.36)	4.00 (3.68-4.39)	8.03 (7.11-9.09)	12.7 (11.1-14.8)	1814
	09-10	2.97 (2.60-3.39)	2.75 (2.38-3.22)	5.25 (4.45-6.31)	11.3 (9.63-13.2)	18.1 (15.4-21.6)	1914
Gender Males	01-02	2.35 (2.17-2.56)	2.20 (2.02-2.42)	3.76 (3.45-4.20)	7.17 (6.27-8.06)	11.5 (9.28-15.1)	1371
	03-04	2.55 (2.39-2.72)	2.36 (2.22-2.47)	4.14 (3.52-4.86)	7.84 (6.80-8.79)	11.6 (10.2-13.5)	1250
	05-06	1.86 (1.70-2.03)	1.70 (1.53-1.88)	3.33 (2.92-3.70)	6.70 (5.59-8.33)	10.7 (8.72-14.2)	1270
	07-08	2.54 (2.34-2.76)	2.32 (2.10-2.50)	4.17 (3.80-4.81)	8.91 (7.37-11.2)	14.7 (12.9-17.5)	1294
	09-10	3.02 (2.61-3.49)	2.82 (2.43-3.36)	5.51 (4.70-6.36)	10.9 (9.84-12.1)	18.5 (13.7-23.7)	1399
Females	01-02	2.81 (2.48-3.18)	2.76 (2.46-3.02)	4.39 (3.97-4.92)	7.66 (6.17-8.69)	11.0 (8.62-15.9)	1411
	03-04	2.93 (2.68-3.20)	2.89 (2.58-3.23)	4.53 (4.09-5.00)	7.58 (6.44-8.57)	10.0 (8.60-11.6)	1355
	05-06	2.15 (1.88-2.45)	2.00 (1.72-2.44)	3.77 (3.15-4.47)	6.90 (5.62-8.43)	10.0 (8.14-12.5)	1278
	07-08	3.04 (2.84-3.25)	2.80 (2.50-3.11)	5.08 (4.64-5.52)	10.3 (8.67-11.3)	15.0 (11.8-17.8)	1310
	09-10	3.28 (2.88-3.74)	3.00 (2.58-3.46)	5.87 (4.96-7.05)	13.0 (10.3-14.8)	19.1 (15.4-29.5)	1350

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCP) (creatinine corrected) (2001 – 2010)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	2.52 (2.21-2.88)	2.37 (2.07-2.73)	4.29 (3.73-5.00)	7.36 (5.58-10.3)	11.4 (8.36-14.5)	677
	03-04	2.78 (2.56-3.02)	2.63 (2.30-2.96)	4.32 (3.66-4.96)	8.14 (6.72-10.3)	12.8 (9.37-17.1)	652
	05-06	2.02 (1.62-2.51)	1.79 (1.42-2.53)	3.85 (2.74-5.22)	7.00 (5.40-8.82)	10.2 (7.64-16.4)	637
	07-08	2.60 (2.26-2.99)	2.45 (2.05-3.10)	4.31 (3.49-5.22)	8.31 (6.67-9.76)	12.9 (9.50-15.5)	531
	09-10	2.29 (1.92-2.74)	2.08 (1.76-2.60)	4.29 (3.61-5.05)	9.02 (7.16-11.4)	13.7 (10.9-17.8)	566
Non-Hispanic blacks	01-02	2.17 (2.02-2.33)	2.07 (1.88-2.28)	3.68 (3.25-4.07)	6.73 (5.46-7.70)	10.0 (8.27-13.1)	703
	03-04	2.34 (2.13-2.58)	2.17 (1.99-2.45)	3.96 (3.33-4.43)	6.93 (6.03-8.80)	13.4 (9.32-15.9)	699
	05-06	1.61 (1.42-1.81)	1.58 (1.38-1.77)	2.76 (2.27-3.37)	5.63 (4.33-7.59)	8.68 (6.86-10.4)	678
	07-08	2.28 (1.96-2.65)	2.11 (1.72-2.35)	3.91 (3.33-4.56)	7.97 (5.58-12.8)	16.4 (8.21-57.0)	597
	09-10	2.45 (2.02-2.97)	2.26 (1.81-2.84)	4.14 (3.35-5.19)	8.02 (6.24-11.3)	14.7 (9.92-19.7)	516
Non-Hispanic whites	01-02	2.69 (2.42-3.00)	2.57 (2.25-2.94)	4.19 (3.87-4.79)	7.63 (6.58-8.45)	11.8 (10.0-14.7)	1216
	03-04	2.83 (2.60-3.09)	2.65 (2.43-2.96)	4.55 (3.90-5.16)	7.79 (6.59-8.79)	10.6 (9.43-11.3)	1088
	05-06	2.08 (1.92-2.24)	1.95 (1.76-2.12)	3.60 (3.26-4.00)	6.47 (5.56-7.93)	10.3 (7.95-13.1)	1038
	07-08	2.96 (2.72-3.23)	2.70 (2.50-2.93)	5.06 (4.35-5.77)	10.3 (8.61-11.5)	15.1 (12.3-19.3)	1077
	09-10	3.57 (3.12-4.07)	3.28 (2.81-3.73)	6.33 (5.25-7.39)	13.2 (11.1-14.9)	21.6 (16.6-26.2)	1206

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-(3-carboxypropyl) phthalate (MCPP) (creatinine corrected) (2011 – 2014)

Metabolite of Di-n-octyl phthalate (DOP) and of several high molecular weight phthalates

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.42 (2.93-3.99)	2.86 (2.44-3.33)	6.00 (4.95-7.75)	15.8 (10.8-23.6)	36.6 (18.8-65.9)	2487
	13-14	2.14 (1.95-2.35)	1.88 (1.72-2.14)	3.91 (3.37-4.60)	9.12 (7.96-11.4)	16.7 (14.1-19.1)	2684
Age group							
6-11 years	11-12	4.79 (4.18-5.49)	4.19 (3.60-4.67)	7.26 (5.81-8.61)	15.7 (8.97-26.7)	28.2 (16.4-39.8)	395
	13-14	3.92 (3.36-4.58)	3.44 (2.97-4.11)	6.92 (5.22-8.53)	17.2 (9.57-25.3)	27.8 (13.0-36.6)	409
12-19 years	11-12	3.18 (2.50-4.04)	2.44 (1.82-3.31)	5.59 (3.85-8.33)	26.6 (8.44-45.7)	45.7 (17.4-80.0)	388
	13-14	2.06 (1.72-2.45)	1.76 (1.55-2.29)	3.43 (2.99-4.39)	9.52 (5.96-14.5)	18.6 (10.1-30.0)	462
20 years and older	11-12	3.33 (2.83-3.93)	2.69 (2.34-3.16)	5.97 (4.78-7.89)	15.7 (10.7-22.1)	32.2 (17.1-69.6)	1704
	13-14	2.02 (1.82-2.24)	1.79 (1.59-2.01)	3.62 (3.07-4.47)	8.54 (7.33-10.7)	16.0 (13.1-18.9)	1813
Gender							
Males	11-12	3.29 (2.80-3.86)	2.67 (2.35-3.07)	6.00 (4.86-7.58)	15.7 (10.1-25.0)	41.5 (17.2-89.9)	1258
	13-14	1.99 (1.80-2.21)	1.79 (1.57-1.98)	3.67 (3.07-4.55)	8.54 (7.12-10.5)	15.3 (10.7-19.8)	1284
Females	11-12	3.55 (2.95-4.27)	3.00 (2.44-3.65)	6.05 (4.80-8.45)	15.8 (9.78-25.7)	33.7 (16.2-65.9)	1229
	13-14	2.30 (1.99-2.66)	2.06 (1.74-2.42)	4.21 (3.42-5.20)	10.0 (7.54-14.0)	17.4 (14.0-22.3)	1400
Race/ethnicity							
Mexican Americans	11-12	2.91 (2.34-3.61)	2.50 (2.14-2.92)	4.88 (3.49-6.11)	11.5 (6.42-24.4)	24.4 (9.94-78.7)	316
	13-14	1.79 (1.62-1.98)	1.64 (1.40-2.03)	3.17 (2.70-3.56)	6.56 (5.36-9.09)	10.7 (6.92-17.8)	438
Non-Hispanic blacks	11-12	2.76 (2.42-3.15)	2.27 (1.96-2.65)	4.82 (3.77-6.23)	11.8 (8.36-15.1)	22.9 (15.3-31.9)	665
	13-14	1.62 (1.44-1.81)	1.39 (1.18-1.74)	2.96 (2.48-3.40)	7.78 (5.25-10.0)	11.9 (8.28-19.8)	609
Non-Hispanic whites	11-12	3.67 (3.06-4.42)	3.08 (2.58-3.93)	6.92 (5.14-9.10)	16.3 (11.2-27.0)	36.8 (17.6-69.6)	811
	13-14	2.34 (2.09-2.63)	2.05 (1.76-2.39)	4.39 (3.49-5.41)	10.0 (8.11-13.8)	17.1 (14.7-20.3)	987
All Hispanics	11-12	3.13 (2.50-3.92)	2.45 (2.14-2.73)	5.31 (4.04-6.73)	15.1 (7.09-36.6)	34.6 (11.9-128)	571
	13-14	1.94 (1.70-2.20)	1.76 (1.53-2.07)	3.39 (3.05-4.00)	8.19 (5.70-11.7)	14.7 (8.92-25.7)	690
Asians	11-12	3.00 (2.29-3.92)	2.54 (2.08-3.14)	4.64 (3.56-7.40)	14.7 (6.97-38.8)	38.8 (21.3-65.7)	352
	13-14	1.78 (1.51-2.10)	1.55 (1.19-1.93)	2.95 (2.32-4.05)	7.94 (5.88-9.62)	13.8 (8.00-34.1)	288

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-octyl phthalate (MOP) (1999 – 2010)‡

Metabolite of Di-n-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size	
Total	99-00	*	< LOD	< LOD	2.69 (2.02-3.36)	4.87 (3.86-5.71)	2541	
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782	
	03-04	*	< LOD	< LOD	< LOD	< LOD	2605	
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548	
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604	
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749	
Age group 6-11 years	99-00	*	< LOD	< LOD	3.70 (<LOD-5.88)	5.38 (2.86-8.40)	328	
	01-02	*	< LOD	< LOD	< LOD	< LOD	393	
	03-04	*	< LOD	< LOD	< LOD	< LOD	342	
	05-06	*	< LOD	< LOD	< LOD	< LOD	356	
	07-08	*	< LOD	< LOD	< LOD	< LOD	389	
	09-10	*	< LOD	< LOD	< LOD	< LOD	415	
12-19 years	99-00	*	< LOD	< LOD	2.86 (<LOD-4.20)	4.70 (3.36-7.06)	752	
	01-02	*	< LOD	< LOD	< LOD	< LOD	742	
	03-04	*	< LOD	< LOD	< LOD	< LOD	729	
	05-06	*	< LOD	< LOD	< LOD	< LOD	702	
	07-08	*	< LOD	< LOD	< LOD	< LOD	401	
	09-10	*	< LOD	< LOD	< LOD	< LOD	420	
20 years and older	99-00	*	< LOD	< LOD	2.52 (1.85-3.19)	4.87 (3.53-5.88)	1461	
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647	
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534	
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490	
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814	
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914	
Gender	Males	99-00	*	< LOD	< LOD	2.69 (1.85-3.70)	4.70 (3.36-5.88)	1215
		01-02	*	< LOD	< LOD	< LOD	< LOD	1371
		03-04	*	< LOD	< LOD	< LOD	< LOD	1250
		05-06	*	< LOD	< LOD	< LOD	< LOD	1270
		07-08	*	< LOD	< LOD	< LOD	< LOD	1294
		09-10	*	< LOD	< LOD	< LOD	< LOD	1399
	Females	99-00	*	< LOD	< LOD	2.52 (2.02-3.53)	5.21 (3.70-6.38)	1326
		01-02	*	< LOD	< LOD	< LOD	< LOD	1411
		03-04	*	< LOD	< LOD	< LOD	< LOD	1355
		05-06	*	< LOD	< LOD	< LOD	< LOD	1278
		07-08	*	< LOD	< LOD	< LOD	< LOD	1310
		09-10	*	< LOD	< LOD	< LOD	< LOD	1350

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.51, 1.68, 1.68, 1.85, 1.85 and 0.84 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-octyl phthalate (MOP) (1999 – 2010)‡

Metabolite of Di-n-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	1.85 (<LOD-2.35)	2.69 (2.35-4.37)	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	3.19 (<LOD-5.04)	5.04 (3.70-6.89)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	703
	03-04	*	< LOD	< LOD	< LOD	< LOD	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	< LOD	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	2.69 (2.02-3.53)	5.04 (3.86-5.88)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 1.51, 1.68, 1.68, 1.85, 1.85 and 0.84 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-octyl phthalate (MOP) (creatinine corrected) (1999 – 2010)‡

Metabolite of Di-n-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	*	< LOD	< LOD	4.03 (3.48-4.38)	5.93 (4.96-7.21)	2541
	01-02	*	< LOD	< LOD	< LOD	< LOD	2782
	03-04	*	< LOD	< LOD	< LOD	< LOD	2605
	05-06	*	< LOD	< LOD	< LOD	< LOD	2548
	07-08	*	< LOD	< LOD	< LOD	< LOD	2604
	09-10	*	< LOD	< LOD	< LOD	< LOD	2749
Age group 6-11 years	99-00	*	< LOD	< LOD	3.73 (<LOD-6.30)	6.30 (3.31-17.2)	328
	01-02	*	< LOD	< LOD	< LOD	< LOD	393
	03-04	*	< LOD	< LOD	< LOD	< LOD	342
	05-06	*	< LOD	< LOD	< LOD	< LOD	356
	07-08	*	< LOD	< LOD	< LOD	< LOD	389
	09-10	*	< LOD	< LOD	< LOD	< LOD	415
12-19 years	99-00	*	< LOD	< LOD	2.50 (<LOD-2.87)	3.16 (2.59-5.59)	752
	01-02	*	< LOD	< LOD	< LOD	< LOD	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	729
	05-06	*	< LOD	< LOD	< LOD	< LOD	702
	07-08	*	< LOD	< LOD	< LOD	< LOD	401
	09-10	*	< LOD	< LOD	< LOD	< LOD	420
20 years and older	99-00	*	< LOD	< LOD	4.37 (3.48-4.89)	5.93 (5.04-7.76)	1461
	01-02	*	< LOD	< LOD	< LOD	< LOD	1647
	03-04	*	< LOD	< LOD	< LOD	< LOD	1534
	05-06	*	< LOD	< LOD	< LOD	< LOD	1490
	07-08	*	< LOD	< LOD	< LOD	< LOD	1814
	09-10	*	< LOD	< LOD	< LOD	< LOD	1914
Gender Males	99-00	*	< LOD	< LOD	3.06 (2.59-3.48)	4.30 (3.26-5.80)	1215
	01-02	*	< LOD	< LOD	< LOD	< LOD	1371
	03-04	*	< LOD	< LOD	< LOD	< LOD	1250
	05-06	*	< LOD	< LOD	< LOD	< LOD	1270
	07-08	*	< LOD	< LOD	< LOD	< LOD	1294
	09-10	*	< LOD	< LOD	< LOD	< LOD	1399
Females	99-00	*	< LOD	< LOD	5.04 (4.20-5.96)	7.21 (5.59-10.5)	1326
	01-02	*	< LOD	< LOD	< LOD	< LOD	1411
	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1278
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1350

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported..

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Mono-n-octyl phthalate (MOP) (creatinine corrected) (1999 – 2010)‡

Metabolite of Di-n-octyl phthalate (DOP)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.**

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	*	< LOD	< LOD	3.06 (<LOD-4.70)	5.59 (4.37-6.72)	814
	01-02	*	< LOD	< LOD	< LOD	< LOD	677
	03-04	*	< LOD	< LOD	< LOD	< LOD	652
	05-06	*	< LOD	< LOD	< LOD	< LOD	637
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	< LOD	566
Non-Hispanic blacks	99-00	*	< LOD	< LOD	2.28 (<LOD-3.26)	3.73 (2.52-5.49)	603
	01-02	*	< LOD	< LOD	< LOD	< LOD	703
	03-04	*	< LOD	< LOD	< LOD	< LOD	699
	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	597
	09-10	*	< LOD	< LOD	< LOD	< LOD	516
Non-Hispanic whites	99-00	*	< LOD	< LOD	4.38 (3.60-5.17)	6.12 (5.29-8.40)	912
	01-02	*	< LOD	< LOD	< LOD	< LOD	1216
	03-04	*	< LOD	< LOD	< LOD	< LOD	1088
	05-06	*	< LOD	< LOD	< LOD	< LOD	1038
	07-08	*	< LOD	< LOD	< LOD	< LOD	1077
	09-10	*	< LOD	< LOD	< LOD	< LOD	1206

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**To correct for inadequate purity in the analytical standards, all results and LODs have been adjusted by a factor of 1.68 for survey periods 1999-2008 compared with results previously reported.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DOP_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Cyclohexane-1,2-dicarboxylic mono hydroxyisononyl ester (MHNCH) (2011 – 2014)

Metabolite of Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH)

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.600 (.500-.800)	1.10 (.900-1.20)	2489
	13-14	*	< LOD	< LOD	.900 (.800-1.00)	1.50 (1.30-1.90)	2685
Age group							
6-11 years	11-12	*	< LOD	.800 (.600-1.10)	1.90 (1.20-2.70)	4.10 (1.90-6.00)	396
	13-14	.684 (.585-.799)	.600 (.500-.800)	1.10 (1.00-1.60)	2.40 (2.10-3.10)	3.90 (2.80-4.60)	409
12-19 years	11-12	*	< LOD	.400 (<LOD-.600)	.900 (.600-1.30)	1.30 (.900-2.50)	388
	13-14	*	< LOD	.600 (.500-.700)	1.10 (.800-1.70)	1.70 (1.20-2.50)	462
20 years and older	11-12	*	< LOD	< LOD	.500 (.400-.600)	.800 (.700-.900)	1705
	13-14	*	< LOD	< LOD	.700 (.600-.800)	1.10 (.900-1.40)	1814
Gender							
Males	11-12	*	< LOD	< LOD	.700 (.600-1.00)	1.10 (.800-1.70)	1259
	13-14	*	< LOD	< LOD	.800 (.700-1.00)	1.40 (1.20-1.70)	1285
Females	11-12	*	< LOD	< LOD	.600 (.500-.700)	.900 (.800-1.10)	1230
	13-14	*	< LOD	< LOD	.900 (.800-1.10)	1.60 (1.30-1.90)	1400
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.400 (<LOD-.500)	.800 (.600-1.10)	1.30 (.800-2.70)	316
	13-14	*	< LOD	.500 (<LOD-.600)	.900 (.800-1.10)	1.60 (.900-2.50)	438
Non-Hispanic blacks	11-12	*	< LOD	.500 (<LOD-.500)	.900 (.700-1.10)	1.20 (1.10-1.50)	665
	13-14	*	< LOD	.500 (<LOD-.700)	1.10 (.900-1.40)	1.80 (1.40-2.20)	609
Non-Hispanic whites	11-12	*	< LOD	< LOD	.600 (.500-.700)	.900 (.700-1.10)	813
	13-14	*	< LOD	< LOD	.800 (.600-.900)	1.30 (1.00-1.70)	987
All Hispanics	11-12	*	< LOD	< LOD	.700 (.600-.900)	1.10 (.800-1.60)	571
	13-14	*	< LOD	.500 (<LOD-.600)	.900 (.800-1.10)	1.60 (1.10-2.30)	690
Asians	11-12	*	< LOD	< LOD	1.00 (.700-1.50)	2.00 (1.20-5.50)	352
	13-14	*	< LOD	< LOD	1.00 (.600-2.10)	2.90 (1.10-7.80)	289

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.4 and 0.4, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DINCH_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Cyclohexane-1,2-dicarboxylic mono hydroxyisononyl ester (MHNCH) (creatinine corrected) (2011 – 2014)

Metabolite of Di(isononyl) cyclohexane-1,2-dicarboxylate (DINCH)

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	1.12 (1.01-1.22)	1.57 (1.39-1.87)	2487
	13-14	*	< LOD	< LOD	1.17 (1.08-1.26)	1.67 (1.54-1.87)	2684
Age group							
6-11 years	11-12	*	< LOD	1.27 (1.04-1.40)	2.22 (1.65-3.11)	3.81 (2.38-6.64)	395
	13-14	.864 (.750-.995)	.811 (.755-.896)	1.47 (1.25-1.78)	2.82 (2.27-3.21)	4.17 (3.21-5.80)	409
12-19 years	11-12	*	< LOD	.581 (<LOD-.700)	1.00 (.778-1.33)	1.57 (1.04-2.86)	388
	13-14	*	< LOD	.571 (.476-.667)	.966 (.751-1.17)	1.21 (1.04-1.75)	462
20 years and older	11-12	*	< LOD	< LOD	1.03 (.933-1.12)	1.39 (1.17-1.65)	1704
	13-14	*	< LOD	< LOD	1.04 (.933-1.17)	1.46 (1.22-1.74)	1813
Gender							
Males	11-12	*	< LOD	< LOD	.916 (.778-1.08)	1.39 (1.08-1.59)	1258
	13-14	*	< LOD	< LOD	.930 (.800-1.08)	1.40 (1.08-1.67)	1284
Females	11-12	*	< LOD	< LOD	1.22 (1.12-1.40)	1.91 (1.47-2.55)	1229
	13-14	*	< LOD	< LOD	1.31 (1.17-1.56)	1.96 (1.58-2.50)	1400
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.667 (<LOD-.755)	1.22 (.903-1.47)	1.61 (1.27-2.76)	316
	13-14	*	< LOD	.636 (<LOD-.800)	1.22 (.941-1.61)	1.80 (1.33-2.37)	438
Non-Hispanic blacks	11-12	*	< LOD	.449 (<LOD-.528)	.848 (.757-.952)	1.23 (1.02-1.57)	665
	13-14	*	< LOD	.517 (<LOD-.596)	.927 (.820-1.02)	1.27 (1.04-1.47)	609
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.12 (1.00-1.22)	1.56 (1.22-2.00)	811
	13-14	*	< LOD	< LOD	1.17 (1.04-1.27)	1.65 (1.40-1.98)	987
All Hispanics	11-12	*	< LOD	< LOD	1.12 (.824-1.47)	1.54 (1.27-1.87)	571
	13-14	*	< LOD	.609 (<LOD-.757)	1.22 (1.02-1.54)	1.87 (1.61-2.31)	690
Asians	11-12	*	< LOD	< LOD	1.89 (1.33-2.22)	3.57 (2.00-7.00)	352
	13-14	*	< LOD	< LOD	1.47 (1.04-2.84)	3.93 (1.47-8.84)	288

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DINCH_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Phthalates_FactSheet.html

Urinary Daidzein (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	75.1 (61.9-91.1)	69.8 (57.8-82.6)	229 (184-298)	538 (471-702)	1320 (1020-1540)	2553
	01-02	51.7 (46.6-57.5)	52.3 (48.9-57.4)	192 (151-226)	577 (447-725)	1250 (863-1640)	2794
	03-04	66.7 (60.4-73.7)	62.0 (54.1-69.7)	195 (171-219)	590 (500-675)	1070 (893-1330)	2594
	05-06	66.5 (59.7-74.1)	58.8 (51.0-67.7)	204 (187-226)	648 (485-745)	1180 (1000-1350)	2528
	07-08	67.1 (60.2-74.8)	57.6 (49.1-66.0)	203 (182-222)	747 (551-994)	1740 (1210-2240)	2424
	09-10	69.3 (61.6-77.9)	57.2 (48.8-64.3)	228 (190-262)	753 (671-880)	1850 (1380-2480)	2792
Age group 6-11 years	99-00	90.5 (75.1-109)	101 (70.3-138)	257 (172-430)	510 (437-840)	1130 (657-1740)	330
	01-02	84.9 (71.6-101)	72.7 (56.3-97.0)	261 (155-385)	605 (437-989)	1060 (645-1500)	396
	03-04	84.9 (71.6-101)	66.8 (55.4-92.8)	229 (151-314)	574 (371-654)	818 (625-1060)	341
	05-06	94.1 (74.3-119)	74.0 (56.0-95.9)	287 (149-471)	1010 (557-1600)	1870 (1040-3830)	351
	07-08	105 (80.2-137)	90.6 (61.4-123)	277 (183-431)	1370 (491-2190)	2190 (1340-3500)	360
	09-10	109 (88.1-135)	98.5 (75.4-119)	461 (262-605)	1000 (730-1520)	1900 (1120-2800)	371
12-19 years	99-00	123 (91.4-166)	124 (85.6-168)	326 (227-454)	833 (445-1490)	1460 (861-2410)	753
	01-02	69.3 (52.6-91.3)	70.2 (52.5-87.5)	255 (185-344)	774 (573-984)	1360 (922-1950)	744
	03-04	89.0 (75.2-105)	78.0 (59.0-104)	248 (197-332)	808 (500-968)	1200 (900-1790)	729
	05-06	94.4 (76.0-117)	77.1 (59.7-103)	286 (200-416)	836 (530-1170)	1390 (929-2220)	693
	07-08	79.7 (64.4-98.6)	76.0 (52.2-107)	256 (189-300)	828 (396-1100)	1220 (874-2070)	375
	09-10	94.2 (74.1-120)	82.9 (60.8-116)	295 (201-395)	1020 (690-1210)	1390 (1150-2500)	447
20 years and older	99-00	67.6 (55.4-82.4)	60.9 (49.3-74.1)	215 (167-239)	518 (459-573)	1320 (978-1540)	1470
	01-02	46.4 (41.4-52.0)	49.1 (40.8-53.4)	176 (133-216)	520 (396-703)	1210 (771-1900)	1654
	03-04	61.9 (55.2-69.4)	57.9 (48.7-68.5)	180 (150-214)	554 (416-695)	1110 (857-1360)	1524
	05-06	60.5 (53.4-68.7)	54.0 (46.8-63.8)	197 (169-209)	512 (427-664)	1100 (795-1270)	1484
	07-08	62.2 (55.0-70.4)	51.7 (44.3-60.3)	189 (169-211)	686 (514-939)	1640 (1060-2500)	1689
	09-10	63.0 (54.7-72.5)	49.3 (43.0-59.8)	203 (168-250)	701 (572-856)	1980 (1220-2780)	1974
Gender Males	99-00	88.9 (71.4-111)	80.6 (66.6-112)	262 (198-355)	587 (501-989)	1540 (989-2080)	1220
	01-02	49.8 (42.8-57.9)	50.8 (46.0-55.0)	190 (137-240)	498 (386-694)	920 (717-1380)	1375
	03-04	73.8 (63.4-85.9)	65.2 (56.1-76.4)	214 (156-311)	709 (535-900)	1200 (969-1380)	1244
	05-06	73.9 (65.3-83.6)	66.4 (53.8-78.5)	210 (180-241)	694 (471-823)	1180 (979-1400)	1252
	07-08	72.7 (62.2-85.0)	63.4 (49.3-76.5)	210 (174-259)	706 (520-1180)	2010 (1210-3520)	1198
	09-10	68.8 (59.0-80.3)	55.0 (46.0-65.0)	207 (168-257)	674 (559-840)	1430 (1160-2370)	1377
Females	99-00	64.1 (52.9-77.6)	57.8 (45.0-73.2)	199 (150-244)	476 (389-722)	1220 (566-1700)	1333
	01-02	53.6 (48.1-59.8)	55.7 (49.8-62.7)	199 (149-234)	642 (511-816)	1470 (1170-1980)	1419
	03-04	60.7 (53.6-68.8)	57.4 (49.1-67.6)	175 (159-201)	466 (381-622)	884 (654-1380)	1350
	05-06	60.1 (52.5-68.9)	52.5 (45.0-61.1)	200 (166-231)	587 (420-717)	1140 (811-1440)	1276
	07-08	62.2 (54.4-71.0)	52.2 (44.4-58.7)	191 (169-217)	752 (476-905)	1570 (994-2180)	1226
	09-10	69.8 (60.7-80.3)	60.2 (46.1-71.1)	249 (200-309)	840 (694-973)	2140 (1210-2910)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.5, 1.6, 0.3, 0.4, 0.4, and 0.4 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Daidzein (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	78.9 (59.8-104)	66.2 (48.4-87.1)	254 (170-402)	806 (534-1020)	1360 (968-2780)	816
	01-02	39.2 (28.5-54.0)	39.9 (28.8-59.9)	169 (100-291)	515 (388-669)	896 (613-1480)	679
	03-04	57.4 (50.2-65.7)	45.5 (35.2-53.3)	178 (130-236)	686 (487-934)	1390 (934-1650)	653
	05-06	60.6 (53.3-68.9)	54.1 (44.3-65.2)	193 (155-239)	671 (424-966)	1350 (966-1550)	634
	07-08	60.5 (46.6-78.6)	45.8 (34.4-67.3)	206 (143-313)	815 (510-1010)	1410 (994-2010)	520
	09-10	60.6 (48.8-75.2)	48.8 (38.6-74.3)	219 (142-283)	622 (495-853)	1190 (884-1570)	604
Non-Hispanic blacks	99-00	91.9 (71.9-118)	103 (81.6-133)	286 (243-377)	553 (459-824)	1190 (640-1900)	607
	01-02	66.1 (48.2-90.7)	72.9 (52.8-97.3)	255 (182-393)	757 (448-1400)	1410 (757-2480)	706
	03-04	75.0 (56.1-100)	66.0 (50.7-86.6)	241 (151-340)	622 (408-875)	1190 (660-2300)	699
	05-06	81.3 (71.6-92.4)	76.5 (64.7-97.1)	254 (199-331)	676 (463-874)	1210 (760-1790)	662
	07-08	84.0 (63.3-111)	69.8 (43.4-102)	338 (248-419)	1080 (735-1500)	2180 (1230-2610)	562
	09-10	77.2 (64.6-92.1)	69.9 (58.1-82.6)	229 (192-281)	711 (534-1080)	1350 (894-3480)	534
Non-Hispanic whites	99-00	74.4 (61.5-89.9)	66.9 (56.2-78.2)	216 (157-298)	512 (438-745)	1360 (989-1710)	917
	01-02	48.6 (43.8-54.0)	49.8 (42.8-54.2)	171 (137-204)	504 (389-658)	1140 (774-1620)	1222
	03-04	65.8 (58.6-74.0)	62.0 (52.8-71.9)	191 (165-215)	572 (416-722)	1070 (823-1330)	1079
	05-06	62.0 (54.4-70.7)	54.2 (46.9-64.1)	200 (164-216)	581 (430-717)	1040 (811-1310)	1039
	07-08	63.6 (56.8-71.2)	56.7 (46.2-65.0)	180 (158-212)	603 (455-832)	1430 (915-2170)	993
	09-10	68.3 (58.2-80.2)	55.0 (45.5-66.8)	219 (168-284)	726 (584-887)	1740 (1150-2510)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.5, 1.6, 0.3, 0.4, 0.4, and 0.4 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Daidzein (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	68.5 (55.9-83.9)	65.1 (52.8-80.8)	204 (156-249)	560 (471-629)	944 (836-1150)	2553
	01-02	48.5 (43.7-54.0)	48.3 (43.1-56.5)	166 (140-196)	500 (391-608)	957 (801-1180)	2794
	03-04	62.5 (58.3-67.0)	56.1 (50.0-63.5)	164 (144-187)	502 (429-591)	1060 (825-1150)	2594
	05-06	64.8 (58.7-71.6)	52.4 (47.4-59.7)	184 (162-209)	564 (461-679)	1070 (896-1310)	2528
	07-08	67.5 (60.5-75.2)	55.6 (47.4-64.0)	197 (178-217)	672 (538-897)	1400 (1070-2250)	2424
	09-10	74.2 (67.0-82.2)	55.9 (51.6-61.7)	219 (184-272)	790 (688-1090)	1920 (1550-2390)	2791
Age group 6-11 years	99-00	92.6 (76.3-112)	93.1 (71.2-114)	251 (157-324)	552 (363-838)	1070 (781-2150)	330
	01-02	96.4 (79.0-118)	85.9 (60.3-127)	275 (159-395)	655 (452-733)	938 (683-1140)	396
	03-04	90.4 (77.2-106)	72.8 (58.1-99.5)	201 (152-240)	454 (329-638)	702 (526-1200)	341
	05-06	104 (83.1-130)	73.8 (59.5-96.7)	305 (175-453)	1040 (686-1830)	2430 (1190-3630)	351
	07-08	128 (101-164)	106 (80.0-141)	307 (197-429)	1420 (543-2630)	2630 (1380-3670)	360
	09-10	149 (124-179)	128 (91.0-162)	500 (346-601)	1230 (814-1530)	2150 (1450-3070)	370
12-19 years	99-00	83.1 (58.4-118)	85.6 (53.8-126)	207 (138-386)	628 (295-1060)	1000 (628-2380)	753
	01-02	53.4 (40.8-70.0)	50.9 (38.3-77.6)	181 (142-248)	549 (385-718)	1030 (622-1360)	744
	03-04	66.6 (55.7-79.6)	56.4 (43.9-74.6)	179 (151-217)	517 (370-753)	877 (617-1240)	729
	05-06	70.0 (56.9-86.2)	55.1 (42.9-74.3)	203 (149-263)	545 (338-845)	914 (659-1750)	693
	07-08	61.3 (51.5-72.9)	61.9 (39.9-75.0)	191 (144-217)	470 (295-645)	821 (544-1110)	375
	09-10	88.6 (71.3-110)	76.5 (53.6-107)	249 (177-312)	689 (522-969)	1410 (823-2740)	447
20 years and older	99-00	63.8 (51.5-79.1)	59.3 (48.7-75.0)	194 (151-234)	554 (471-624)	908 (783-1180)	1470
	01-02	43.9 (39.4-48.9)	43.8 (37.4-53.3)	153 (125-186)	428 (348-590)	946 (728-1220)	1654
	03-04	59.2 (54.3-64.5)	51.7 (46.4-62.6)	155 (131-185)	501 (404-658)	1090 (808-1240)	1524
	05-06	60.7 (54.3-67.8)	50.6 (43.1-59.5)	171 (151-199)	483 (434-609)	1030 (847-1200)	1484
	07-08	63.9 (56.0-72.9)	49.2 (42.6-57.7)	187 (164-216)	675 (514-904)	1340 (962-2780)	1689
	09-10	67.1 (59.4-75.7)	50.3 (44.2-55.5)	194 (168-232)	775 (613-1120)	1980 (1550-2640)	1974
Gender Males	99-00	69.7 (54.7-88.8)	70.2 (51.3-84.3)	198 (147-276)	623 (494-836)	1050 (884-1290)	1220
	01-02	40.5 (34.8-47.1)	41.7 (34.5-47.9)	139 (107-179)	348 (260-553)	788 (585-947)	1375
	03-04	57.7 (49.4-67.3)	48.9 (41.6-58.2)	160 (126-205)	467 (368-600)	919 (665-1200)	1244
	05-06	59.5 (53.3-66.3)	51.0 (43.2-57.6)	164 (134-203)	467 (403-612)	927 (781-1100)	1252
	07-08	61.3 (52.5-71.7)	48.7 (41.5-63.2)	178 (141-205)	585 (412-845)	1290 (907-2810)	1198
	09-10	62.8 (54.8-72.1)	49.9 (42.6-57.3)	174 (145-196)	613 (497-790)	1740 (1170-2570)	1376
Females	99-00	67.4 (54.8-82.9)	62.7 (51.1-80.9)	207 (152-250)	509 (356-624)	850 (610-1410)	1333
	01-02	57.6 (50.8-65.2)	59.5 (48.1-73.4)	191 (159-227)	615 (536-722)	1180 (924-1430)	1419
	03-04	67.4 (60.8-74.9)	65.1 (54.6-73.4)	165 (143-191)	564 (409-699)	1090 (757-1370)	1350
	05-06	70.4 (61.3-80.8)	57.1 (45.1-71.7)	194 (169-216)	609 (463-887)	1200 (957-1750)	1276
	07-08	73.8 (64.9-84.0)	63.0 (52.1-77.2)	223 (190-259)	763 (577-1000)	1410 (1070-1990)	1226
	09-10	87.2 (77.9-97.7)	64.1 (55.6-76.7)	292 (240-336)	972 (800-1230)	2280 (1560-2880)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Daidzein (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	72.5 (59.1-88.9)	64.2 (47.1-91.1)	243 (176-310)	677 (468-1080)	1380 (753-2690)	816
	01-02	36.9 (27.8-49.0)	37.1 (24.8-57.9)	146 (101-225)	441 (307-596)	722 (565-1160)	679
	03-04	51.8 (45.0-59.6)	47.7 (35.9-58.3)	159 (117-209)	502 (354-686)	1130 (779-1390)	653
	05-06	54.7 (45.6-65.7)	47.2 (35.7-61.1)	174 (136-219)	558 (380-617)	925 (642-1140)	634
	07-08	59.5 (44.1-80.1)	41.1 (27.4-76.1)	200 (150-288)	715 (502-1060)	1410 (1090-1860)	520
	09-10	63.7 (52.5-77.1)	49.2 (37.9-65.4)	213 (167-273)	614 (487-861)	1380 (865-1940)	604
Non-Hispanic blacks	99-00	59.1 (46.5-75.1)	67.6 (52.1-87.1)	172 (134-207)	381 (316-533)	802 (562-1010)	607
	01-02	46.4 (33.7-63.8)	49.8 (35.5-69.7)	169 (104-249)	504 (263-773)	939 (542-1530)	706
	03-04	53.1 (42.5-66.4)	44.7 (28.6-72.1)	147 (121-191)	415 (275-538)	727 (538-1040)	699
	05-06	57.0 (50.3-64.5)	48.5 (40.3-59.7)	157 (124-221)	467 (370-654)	913 (603-1290)	662
	07-08	65.0 (48.7-86.6)	53.0 (36.0-80.6)	240 (171-292)	728 (520-937)	1330 (800-2670)	562
	09-10	62.1 (53.0-72.8)	55.7 (42.7-65.0)	179 (157-223)	576 (457-690)	956 (710-1840)	533
Non-Hispanic whites	99-00	72.8 (60.3-88.0)	67.5 (55.3-81.5)	207 (160-249)	560 (442-659)	908 (742-1350)	917
	01-02	48.1 (43.4-53.3)	47.0 (42.0-56.0)	163 (137-191)	463 (375-627)	957 (805-1220)	1222
	03-04	64.9 (59.8-70.3)	58.2 (50.4-66.3)	165 (138-204)	516 (385-667)	1090 (786-1250)	1079
	05-06	65.2 (57.9-73.3)	52.7 (46.5-60.7)	184 (155-211)	564 (443-737)	1070 (894-1390)	1039
	07-08	66.2 (58.4-75.1)	57.7 (46.0-65.5)	187 (160-216)	604 (474-763)	1210 (907-1670)	993
	09-10	76.6 (67.1-87.4)	56.7 (51.2-64.1)	225 (173-306)	809 (617-1180)	1920 (1410-2470)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterodiol (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	26.6 (21.9-32.3)	34.0 (29.4-38.7)	78.8 (62.6-95.5)	165 (135-215)	266 (215-335)	2527
	01-02	35.7 (32.5-39.3)	39.4 (36.3-43.4)	89.2 (80.7-96.9)	181 (162-205)	253 (223-308)	2794
	03-04	39.5 (36.1-43.3)	44.9 (40.6-50.3)	106 (97.2-115)	242 (212-264)	367 (311-423)	2594
	05-06	37.7 (33.2-42.9)	42.4 (39.4-47.2)	106 (95.5-120)	244 (226-266)	379 (305-440)	2528
	07-08	36.8 (32.0-42.4)	43.5 (37.8-49.2)	109 (92.1-124)	238 (199-294)	429 (279-723)	2424
	09-10	39.5 (36.3-43.1)	44.5 (41.0-48.5)	107 (98.4-120)	264 (226-288)	545 (446-651)	2792
Age group 6-11 years	99-00	26.5 (17.1-41.0)	29.4 (21.2-44.2)	78.7 (44.2-109)	215 (91.1-279)	276 (131-458)	327
	01-02	33.6 (29.8-37.8)	35.5 (29.4-43.7)	78.1 (63.8-87.0)	152 (113-171)	203 (167-327)	396
	03-04	42.0 (34.5-51.1)	42.1 (34.4-49.2)	91.4 (74.4-110)	199 (126-289)	312 (217-525)	341
	05-06	33.2 (26.1-42.3)	38.5 (34.7-43.2)	70.4 (55.7-91.7)	129 (99.1-162)	181 (129-366)	351
	07-08	38.5 (30.1-49.3)	42.9 (31.3-55.3)	80.4 (62.7-118)	181 (119-318)	318 (186-439)	360
	09-10	38.6 (33.9-44.0)	39.9 (32.5-44.2)	88.8 (67.7-106)	195 (131-265)	277 (210-380)	371
12-19 years	99-00	29.8 (23.8-37.2)	34.0 (27.4-42.0)	84.4 (59.1-101)	166 (112-234)	253 (182-337)	744
	01-02	35.3 (30.5-40.9)	37.7 (34.8-43.4)	84.2 (72.1-96.9)	165 (128-206)	238 (169-343)	744
	03-04	45.1 (39.4-51.6)	46.3 (38.7-56.9)	99.5 (84.9-109)	191 (161-269)	325 (275-415)	729
	05-06	39.1 (34.0-45.0)	41.1 (36.8-46.5)	92.0 (80.2-109)	193 (151-238)	265 (231-303)	693
	07-08	37.3 (29.5-47.2)	45.8 (32.2-54.1)	97.9 (73.4-126)	199 (151-253)	293 (212-483)	375
	09-10	37.5 (30.4-46.2)	38.3 (32.5-50.7)	98.0 (72.3-119)	184 (122-286)	315 (177-820)	447
20 years and older	99-00	26.1 (21.8-31.3)	34.3 (29.8-38.7)	78.3 (63.5-94.8)	160 (132-196)	263 (189-335)	1456
	01-02	36.1 (31.8-41.0)	40.4 (36.0-45.7)	91.2 (79.3-105)	190 (161-220)	256 (224-312)	1654
	03-04	38.4 (34.2-43.0)	44.9 (40.1-51.9)	112 (98.8-125)	255 (215-274)	398 (320-448)	1524
	05-06	38.1 (32.7-44.4)	43.8 (39.0-49.5)	116 (103-130)	266 (242-281)	413 (326-479)	1484
	07-08	36.5 (31.2-42.8)	43.5 (37.6-49.3)	116 (97.5-130)	247 (194-326)	473 (300-757)	1689
	09-10	40.0 (36.2-44.1)	47.6 (42.2-53.0)	114 (101-130)	277 (230-366)	596 (460-746)	1974
Gender Males	99-00	25.3 (19.5-32.7)	33.0 (28.0-38.0)	72.6 (54.7-94.3)	149 (109-219)	258 (169-286)	1206
	01-02	35.2 (31.8-39.1)	40.5 (36.8-44.8)	90.6 (82.3-103)	184 (158-198)	263 (223-338)	1375
	03-04	39.7 (36.2-43.6)	45.1 (40.5-51.1)	102 (92.9-115)	231 (186-266)	361 (268-460)	1244
	05-06	40.4 (32.8-49.8)	46.2 (38.9-52.3)	107 (90.6-127)	264 (227-289)	413 (287-496)	1252
	07-08	33.1 (28.6-38.2)	39.8 (34.7-43.3)	91.8 (78.6-116)	216 (180-242)	378 (238-738)	1198
	09-10	37.4 (30.9-45.3)	41.7 (35.5-48.4)	94.7 (78.9-111)	227 (173-312)	476 (366-664)	1377
Females	99-00	27.9 (23.4-33.3)	36.0 (29.9-40.3)	84.4 (71.8-97.9)	177 (146-219)	280 (219-375)	1321
	01-02	36.2 (32.2-40.7)	38.5 (35.3-43.4)	87.0 (75.6-98.5)	175 (152-212)	248 (220-283)	1419
	03-04	39.3 (33.8-45.5)	44.9 (38.3-53.0)	110 (97.3-124)	250 (203-294)	398 (309-464)	1350
	05-06	35.4 (30.3-41.2)	41.1 (35.6-45.4)	106 (94.2-123)	225 (186-267)	352 (268-477)	1276
	07-08	40.7 (33.0-50.2)	48.4 (39.3-58.1)	123 (101-145)	258 (206-336)	479 (311-757)	1226
	09-10	41.7 (37.6-46.3)	48.9 (41.6-56.7)	123 (111-140)	277 (243-304)	553 (448-778)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 1.5, 0.3, 0.04, 0.04, and 0.04 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterodiol (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	21.7 (19.5-24.1)	28.0 (24.7-34.7)	70.4 (60.8-78.8)	143 (117-169)	213 (169-256)	791
	01-02	30.5 (25.7-36.3)	34.0 (29.0-39.2)	75.9 (58.8-89.7)	159 (119-202)	244 (192-298)	679
	03-04	33.1 (26.4-41.6)	38.7 (31.2-47.6)	95.2 (78.1-115)	198 (125-307)	307 (186-480)	653
	05-06	38.1 (32.2-45.1)	40.6 (34.6-47.6)	102 (86.8-123)	262 (177-359)	383 (289-511)	634
	07-08	28.2 (24.8-32.0)	29.7 (26.7-33.4)	70.8 (59.9-83.8)	173 (139-208)	305 (207-456)	520
	09-10	27.9 (24.5-31.7)	31.1 (28.8-36.7)	75.5 (66.6-85.5)	157 (120-192)	255 (174-408)	604
Non-Hispanic blacks	99-00	25.8 (21.7-30.7)	31.2 (24.4-35.9)	66.0 (50.2-86.7)	157 (122-193)	260 (185-336)	608
	01-02	35.0 (28.9-42.3)	38.7 (33.2-49.2)	83.7 (70.0-103)	169 (132-191)	225 (175-339)	706
	03-04	40.4 (34.9-46.7)	47.1 (40.4-53.7)	100 (81.3-123)	212 (157-254)	293 (232-417)	699
	05-06	34.7 (30.1-40.1)	38.4 (32.6-44.7)	85.1 (70.9-109)	190 (137-242)	269 (245-364)	662
	07-08	34.4 (26.9-44.0)	38.9 (28.9-48.5)	95.7 (78.5-126)	202 (147-252)	327 (232-514)	562
	09-10	32.4 (27.3-38.4)	35.7 (30.4-42.3)	98.5 (76.2-126)	211 (178-245)	307 (221-546)	534
Non-Hispanic whites	99-00	29.2 (24.0-35.4)	37.6 (31.3-43.8)	85.8 (68.3-99.4)	171 (138-228)	270 (187-375)	915
	01-02	35.6 (31.8-40.0)	40.4 (36.1-44.7)	89.6 (78.5-101)	175 (153-198)	254 (214-337)	1222
	03-04	39.8 (35.5-44.7)	45.8 (38.9-54.9)	109 (95.8-126)	255 (206-267)	365 (294-424)	1079
	05-06	37.3 (31.2-44.6)	42.6 (37.1-50.1)	108 (94.0-127)	243 (219-267)	371 (285-456)	1039
	07-08	39.1 (31.5-48.5)	46.8 (39.3-55.5)	116 (91.8-140)	257 (188-369)	444 (269-839)	993
	09-10	44.1 (39.0-49.9)	51.7 (44.2-56.7)	114 (100-129)	277 (236-311)	596 (414-778)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.8, 1.5, 0.3, 0.04, 0.04, and 0.04 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterodiol (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.2 (20.3-28.9)	29.9 (25.0-34.7)	70.5 (59.6-82.1)	146 (124-177)	240 (199-320)	2527
	01-02	33.5 (30.7-36.7)	37.6 (33.0-42.1)	79.2 (72.6-87.3)	149 (136-164)	224 (197-250)	2794
	03-04	37.0 (33.6-40.7)	41.7 (37.9-45.4)	95.9 (85.6-106)	194 (171-213)	294 (247-368)	2594
	05-06	36.8 (32.7-41.4)	41.0 (35.9-46.3)	103 (94.3-114)	204 (174-219)	323 (280-424)	2528
	07-08	37.0 (32.3-42.3)	42.1 (36.8-48.1)	103 (87.1-117)	224 (164-328)	395 (292-634)	2424
	09-10	42.3 (38.9-46.1)	47.1 (44.9-49.8)	108 (101-117)	281 (234-333)	522 (415-602)	2791
Age group 6-11 years	99-00	27.0 (18.6-39.3)	33.7 (21.8-43.7)	62.7 (43.0-108)	168 (81.6-290)	290 (150-411)	327
	01-02	38.1 (32.5-44.7)	39.3 (30.8-53.1)	78.3 (66.6-103)	188 (147-244)	304 (242-389)	396
	03-04	44.7 (37.4-53.5)	46.6 (38.5-58.3)	93.3 (73.9-125)	177 (128-205)	215 (181-413)	341
	05-06	36.6 (28.9-46.4)	37.8 (32.3-46.5)	75.6 (60.9-105)	156 (109-219)	223 (165-326)	351
	07-08	47.2 (37.5-59.4)	48.0 (38.0-65.2)	86.3 (67.9-178)	230 (181-297)	335 (230-854)	360
	09-10	52.6 (45.0-61.4)	54.3 (39.8-64.5)	104 (79.5-139)	235 (145-335)	336 (239-413)	370
12-19 years	99-00	20.1 (16.7-24.2)	24.1 (19.6-30.1)	55.1 (42.6-71.7)	99.5 (91.5-116)	158 (121-177)	744
	01-02	27.2 (23.3-31.8)	28.7 (24.9-34.9)	62.7 (54.9-71.0)	104 (84.2-139)	152 (111-225)	744
	03-04	33.8 (30.3-37.7)	34.8 (33.2-38.8)	67.6 (64.1-73.9)	130 (107-164)	221 (138-324)	729
	05-06	29.0 (25.2-33.3)	31.4 (27.8-36.1)	68.8 (57.7-80.7)	131 (113-160)	167 (160-216)	693
	07-08	28.7 (22.3-36.9)	33.8 (25.1-43.3)	73.4 (52.9-99.3)	131 (100-207)	207 (128-280)	375
	09-10	35.3 (29.5-42.1)	37.8 (29.7-44.1)	81.7 (66.9-101)	170 (111-303)	306 (170-763)	447
20 years and older	99-00	24.7 (20.6-29.5)	30.6 (26.0-34.8)	73.0 (62.5-84.5)	157 (129-184)	242 (199-344)	1456
	01-02	34.2 (30.3-38.5)	39.6 (32.5-45.3)	84.1 (73.8-93.3)	152 (136-169)	224 (193-250)	1654
	03-04	36.7 (32.5-41.4)	42.0 (37.1-47.8)	103 (91.8-111)	205 (173-239)	327 (256-431)	1524
	05-06	38.2 (33.1-44.0)	43.1 (36.4-49.4)	111 (96.0-128)	216 (187-242)	358 (291-475)	1484
	07-08	37.5 (32.2-43.7)	42.5 (36.8-49.9)	109 (90.7-134)	242 (167-372)	447 (328-718)	1689
	09-10	42.6 (39.0-46.4)	48.3 (46.0-51.1)	113 (103-128)	303 (252-355)	579 (461-747)	1974
Gender Males	99-00	19.8 (15.4-25.4)	25.4 (20.0-31.4)	55.1 (46.4-64.2)	122 (94.6-168)	199 (145-282)	1206
	01-02	28.7 (26.0-31.7)	31.4 (27.0-36.8)	71.3 (64.2-78.0)	136 (114-160)	212 (179-259)	1375
	03-04	31.1 (27.5-35.0)	34.8 (32.3-38.5)	78.0 (68.8-92.7)	165 (128-211)	249 (187-361)	1244
	05-06	32.5 (26.7-39.5)	34.2 (29.5-41.1)	90.9 (75.2-102)	192 (147-235)	311 (218-490)	1252
	07-08	27.9 (23.9-32.6)	33.0 (28.5-38.6)	79.3 (72.4-87.1)	164 (122-234)	259 (172-499)	1198
	09-10	34.2 (27.9-42.0)	39.0 (33.0-45.6)	80.9 (69.7-103)	197 (150-253)	345 (235-494)	1376
Females	99-00	29.3 (25.0-34.4)	35.4 (29.5-41.6)	85.2 (74.5-92.3)	165 (141-201)	321 (226-370)	1321
	01-02	38.9 (34.9-43.3)	43.9 (39.3-48.7)	88.3 (74.7-102)	157 (139-174)	235 (180-304)	1419
	03-04	43.6 (38.3-49.7)	49.0 (43.4-57.7)	109 (98.8-123)	215 (178-270)	377 (278-443)	1350
	05-06	41.4 (36.1-47.4)	48.2 (41.8-55.7)	116 (98.0-131)	210 (183-231)	376 (235-470)	1276
	07-08	48.4 (40.6-57.6)	53.2 (44.2-62.9)	128 (105-154)	300 (215-388)	529 (372-759)	1226
	09-10	52.1 (46.7-58.1)	59.4 (49.4-66.2)	139 (121-156)	384 (311-450)	694 (526-938)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterodiol (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	19.6 (17.3-22.2)	23.5 (19.7-28.7)	60.6 (49.8-77.7)	134 (114-154)	193 (154-227)	791
	01-02	28.7 (24.5-33.7)	31.0 (27.0-37.3)	64.1 (55.0-77.5)	133 (94.4-183)	223 (143-337)	679
	03-04	29.9 (23.8-37.4)	34.0 (26.5-42.8)	74.1 (62.0-101)	176 (118-234)	241 (189-364)	653
	05-06	34.4 (28.3-41.8)	35.3 (30.7-40.0)	84.6 (71.2-110)	200 (145-271)	315 (221-515)	634
	07-08	27.7 (24.5-31.3)	29.5 (23.9-33.8)	75.9 (61.3-88.2)	169 (124-198)	240 (178-387)	520
	09-10	29.3 (25.8-33.3)	33.6 (29.5-38.0)	72.3 (61.4-82.7)	157 (116-193)	265 (193-351)	604
Non-Hispanic blacks	99-00	16.6 (13.9-19.7)	18.8 (14.4-22.9)	47.3 (37.7-55.8)	113 (85.9-145)	169 (131-272)	608
	01-02	24.5 (19.7-30.6)	27.0 (22.6-33.3)	57.5 (48.2-73.2)	117 (92.2-143)	157 (118-246)	706
	03-04	28.6 (24.5-33.4)	30.4 (26.1-36.1)	68.3 (53.4-87.5)	126 (96.3-191)	203 (153-227)	699
	05-06	24.3 (20.5-28.9)	25.3 (22.1-30.4)	68.6 (50.3-86.0)	125 (110-147)	190 (139-245)	662
	07-08	26.6 (20.8-34.0)	30.0 (23.6-38.0)	62.9 (51.9-80.8)	139 (102-191)	257 (156-459)	562
	09-10	26.1 (22.1-30.8)	29.7 (25.5-35.9)	73.9 (56.7-88.3)	153 (115-191)	252 (191-339)	533
Non-Hispanic whites	99-00	28.6 (24.3-33.6)	34.4 (28.9-39.3)	75.8 (65.3-87.2)	163 (130-197)	252 (203-363)	915
	01-02	35.3 (31.6-39.4)	40.9 (34.3-46.8)	83.3 (74.7-90.3)	152 (136-173)	225 (189-275)	1222
	03-04	39.3 (34.4-44.8)	45.5 (38.4-53.0)	105 (90.2-116)	202 (168-234)	299 (244-374)	1079
	05-06	39.2 (33.3-46.1)	45.0 (39.4-50.2)	111 (96.2-124)	210 (175-235)	331 (277-439)	1039
	07-08	40.7 (32.7-50.6)	46.4 (38.6-56.7)	109 (86.3-138)	240 (154-384)	424 (257-802)	993
	09-10	49.5 (43.6-56.1)	53.5 (48.3-59.0)	123 (106-140)	325 (252-384)	572 (414-766)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterolactone (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	239 (200-286)	315 (245-381)	726 (595-879)	1970 (1440-2370)	2800 (2500-3140)	2548
	01-02	259 (233-287)	350 (314-389)	807 (739-873)	1590 (1440-1820)	2720 (1870-3430)	2794
	03-04	298 (265-334)	395 (331-464)	900 (819-969)	1790 (1560-2040)	2620 (2360-2880)	2594
	05-06	283 (245-327)	385 (338-460)	935 (824-1060)	1850 (1710-2040)	2880 (2480-3160)	2528
	07-08	242 (211-277)	311 (263-371)	876 (741-1010)	1740 (1480-2050)	2910 (2170-3320)	2424
	09-10	215 (193-240)	267 (229-306)	734 (659-853)	1760 (1490-2090)	2690 (2220-3160)	2792
Age group 6-11 years	99-00	308 (219-432)	356 (243-474)	721 (520-1320)	1730 (973-2840)	2840 (1700-3590)	331
	01-02	288 (245-339)	329 (271-412)	680 (566-794)	1380 (929-1620)	2200 (1420-2550)	396
	03-04	384 (287-513)	414 (299-567)	926 (589-1190)	1660 (1140-2280)	2360 (1700-3440)	341
	05-06	300 (242-373)	399 (280-546)	851 (667-984)	1390 (1000-1770)	1910 (1390-2460)	351
	07-08	255 (203-320)	314 (247-418)	706 (547-882)	1340 (897-1610)	1730 (1150-2600)	360
	09-10	255 (206-316)	275 (209-346)	666 (552-749)	1480 (1180-1720)	1870 (1500-2870)	371
12-19 years	99-00	250 (191-327)	317 (242-410)	672 (454-888)	1760 (973-2480)	2920 (1950-4330)	746
	01-02	267 (231-308)	321 (255-399)	729 (617-856)	1480 (1230-1800)	2180 (1560-3440)	744
	03-04	314 (267-369)	400 (333-468)	866 (736-1050)	1690 (1410-2080)	2620 (2000-2890)	729
	05-06	292 (245-348)	393 (350-492)	877 (681-1010)	1620 (1470-1800)	2360 (1780-2960)	693
	07-08	250 (203-309)	281 (217-444)	832 (645-1000)	1450 (1100-2030)	2390 (1450-3320)	375
	09-10	194 (154-244)	229 (181-318)	632 (479-735)	1340 (812-2040)	2190 (1340-2960)	447
20 years and older	99-00	230 (193-274)	310 (242-375)	734 (599-888)	2000 (1490-2390)	2790 (2510-3540)	1471
	01-02	254 (223-289)	357 (314-397)	835 (760-914)	1660 (1460-1890)	2840 (1890-3610)	1654
	03-04	286 (253-324)	394 (311-465)	900 (824-960)	1820 (1560-2060)	2630 (2350-3100)	1524
	05-06	280 (238-330)	379 (332-460)	958 (843-1110)	1970 (1760-2310)	3130 (2540-3570)	1484
	07-08	239 (205-280)	311 (258-374)	923 (746-1090)	1800 (1480-2370)	3000 (2210-4030)	1689
	09-10	215 (189-243)	272 (228-320)	768 (666-930)	1850 (1590-2140)	2770 (2350-3690)	1974
Gender Males	99-00	254 (212-304)	351 (266-418)	778 (579-1050)	2000 (1580-2400)	2730 (2430-3350)	1219
	01-02	262 (233-295)	340 (314-387)	873 (769-957)	1810 (1490-2470)	3050 (1990-4070)	1375
	03-04	314 (280-351)	425 (376-477)	938 (840-1060)	1760 (1540-2050)	2620 (2060-3230)	1244
	05-06	301 (247-368)	421 (341-515)	1000 (854-1150)	2020 (1730-2330)	3130 (2660-3340)	1252
	07-08	245 (215-278)	321 (261-389)	882 (714-1030)	1620 (1420-2050)	2700 (2000-3360)	1198
	09-10	210 (173-256)	254 (207-324)	718 (583-870)	1670 (1300-2110)	2680 (1850-4060)	1377
Females	99-00	226 (180-284)	287 (236-339)	684 (560-799)	1890 (1200-2460)	2830 (2100-4330)	1329
	01-02	255 (226-288)	357 (298-397)	759 (680-840)	1450 (1190-1700)	2200 (1710-2950)	1419
	03-04	283 (233-343)	371 (278-465)	859 (706-984)	1810 (1440-2170)	2630 (2210-3440)	1350
	05-06	267 (220-324)	359 (318-445)	874 (716-1030)	1770 (1440-2020)	2660 (2040-3270)	1276
	07-08	240 (196-293)	301 (234-394)	875 (747-1030)	1870 (1510-2200)	2920 (2160-3510)	1226
	09-10	220 (196-247)	281 (237-325)	749 (662-868)	1850 (1520-2220)	2690 (2350-3200)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.6, 1.9, 0.3, 0.1, 0.1, and 0.1 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterolactone (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	212 (169-265)	281 (230-335)	631 (539-732)	1650 (950-2210)	2690 (2380-3350)	813
	01-02	275 (221-342)	347 (312-395)	778 (671-913)	1520 (1090-1920)	2340 (1610-2990)	679
	03-04	275 (239-316)	376 (316-435)	849 (744-958)	1560 (1320-1860)	2240 (1860-3100)	653
	05-06	359 (311-415)	420 (364-515)	914 (750-1080)	1710 (1340-2060)	2660 (1950-3180)	634
	07-08	227 (182-283)	320 (240-385)	747 (634-876)	1520 (1300-1740)	2070 (1650-2840)	520
	09-10	198 (166-237)	265 (215-303)	642 (524-752)	1290 (981-1640)	1930 (1380-2280)	604
Non-Hispanic blacks	99-00	262 (196-349)	363 (293-440)	759 (629-925)	1730 (1000-2420)	2500 (1870-3280)	605
	01-02	278 (226-342)	418 (341-479)	769 (686-853)	1450 (1160-1840)	2000 (1540-2420)	706
	03-04	328 (285-378)	437 (362-526)	942 (768-1110)	1580 (1360-1820)	2280 (1880-2640)	699
	05-06	276 (237-322)	411 (346-483)	924 (827-1050)	1660 (1430-2040)	2620 (2220-3080)	662
	07-08	252 (185-343)	362 (272-452)	902 (700-1120)	1820 (1320-2100)	2350 (1920-3160)	562
	09-10	187 (140-250)	267 (180-346)	777 (543-945)	1410 (1150-1810)	1920 (1580-2340)	534
Non-Hispanic whites	99-00	247 (196-311)	317 (240-403)	752 (616-955)	2040 (1600-2450)	3000 (2460-3880)	917
	01-02	267 (235-303)	357 (307-397)	834 (750-923)	1630 (1420-1890)	2780 (1820-3740)	1222
	03-04	299 (254-352)	396 (299-488)	900 (789-996)	1810 (1510-2140)	2680 (2310-3230)	1079
	05-06	274 (228-329)	373 (318-460)	923 (745-1080)	1800 (1610-2020)	2910 (2360-3220)	1039
	07-08	265 (218-322)	328 (266-409)	926 (733-1130)	1790 (1420-2580)	3030 (2050-4310)	993
	09-10	236 (210-265)	293 (244-334)	765 (660-899)	1900 (1590-2310)	2990 (2210-4300)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.6, 1.9, 0.3, 0.1, 0.1, and 0.1 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterolactone (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	218 (184-260)	284 (247-336)	733 (613-869)	1580 (1290-1830)	2250 (1860-2830)	2548
	01-02	243 (220-268)	324 (293-360)	756 (668-858)	1430 (1250-1580)	2120 (1720-2450)	2794
	03-04	279 (245-317)	371 (324-430)	810 (697-911)	1590 (1350-1910)	2400 (2000-2890)	2594
	05-06	276 (237-321)	382 (329-448)	856 (775-975)	1640 (1480-1840)	2650 (2240-3380)	2528
	07-08	243 (211-281)	345 (292-402)	826 (733-946)	1650 (1390-2050)	2730 (2080-3510)	2424
	09-10	230 (206-258)	301 (268-342)	779 (695-882)	1800 (1540-2090)	2820 (2400-3420)	2791
Age group 6-11 years	99-00	315 (238-416)	384 (266-435)	704 (495-1110)	1580 (1110-2010)	2100 (1580-3040)	331
	01-02	327 (274-391)	349 (263-478)	738 (603-994)	1420 (1140-1800)	2020 (1420-2940)	396
	03-04	409 (310-540)	470 (354-632)	904 (669-1150)	1480 (1090-2420)	2300 (1480-2690)	341
	05-06	331 (268-408)	459 (325-528)	778 (637-1010)	1480 (1130-1750)	1820 (1430-2510)	351
	07-08	313 (255-384)	402 (309-484)	766 (725-824)	1310 (1020-1590)	1650 (1310-2220)	360
	09-10	346 (283-424)	416 (323-471)	753 (607-904)	1440 (1100-2000)	2290 (1440-3340)	370
12-19 years	99-00	169 (133-214)	210 (172-264)	486 (371-615)	1150 (742-1540)	1850 (1310-2350)	746
	01-02	206 (178-239)	255 (223-293)	619 (466-753)	1110 (869-1480)	1500 (1140-2080)	744
	03-04	235 (202-273)	285 (255-307)	631 (533-744)	1230 (993-1350)	1510 (1240-2230)	729
	05-06	216 (184-254)	297 (255-336)	627 (514-701)	1010 (853-1170)	1410 (1150-1700)	693
	07-08	192 (149-248)	273 (197-373)	540 (477-676)	936 (708-1220)	1620 (936-3420)	375
	09-10	182 (147-226)	228 (176-295)	514 (362-809)	1140 (817-1530)	1740 (1140-3160)	447
20 years and older	99-00	217 (181-261)	288 (249-350)	785 (653-923)	1640 (1330-1890)	2310 (1890-3110)	1471
	01-02	240 (213-271)	331 (300-375)	786 (672-915)	1460 (1300-1630)	2180 (1890-2470)	1654
	03-04	274 (236-318)	377 (316-448)	823 (697-937)	1700 (1430-1980)	2480 (2040-3100)	1524
	05-06	281 (236-335)	399 (326-491)	942 (831-1040)	1730 (1570-2200)	2930 (2350-3530)	1484
	07-08	246 (210-287)	350 (291-418)	906 (784-1040)	1810 (1420-2360)	2820 (2320-3570)	1689
	09-10	229 (203-257)	300 (271-346)	828 (727-939)	1920 (1640-2350)	3070 (2530-3760)	1974
Gender Males	99-00	199 (170-234)	263 (228-309)	664 (490-828)	1380 (1200-1710)	2030 (1780-2480)	1219
	01-02	213 (191-238)	287 (255-316)	682 (601-764)	1350 (1090-1580)	1980 (1570-2550)	1375
	03-04	245 (215-280)	330 (288-372)	729 (676-808)	1330 (1160-1580)	2040 (1590-2380)	1244
	05-06	243 (196-300)	336 (279-418)	800 (707-897)	1500 (1270-1680)	2200 (1890-2480)	1252
	07-08	206 (176-241)	303 (251-358)	715 (594-859)	1410 (1080-1850)	2140 (1560-3060)	1198
	09-10	192 (157-235)	261 (210-310)	650 (543-766)	1440 (1170-1670)	2300 (1540-3220)	1376
Females	99-00	238 (191-297)	303 (260-379)	819 (662-968)	1720 (1390-2010)	2550 (1940-3390)	1329
	01-02	274 (241-312)	356 (313-407)	833 (710-1000)	1490 (1320-1670)	2150 (1890-2410)	1419
	03-04	314 (257-385)	414 (327-510)	866 (704-1090)	1840 (1460-2280)	2840 (2220-3910)	1350
	05-06	313 (261-375)	419 (337-529)	954 (809-1060)	1840 (1550-2320)	3100 (2350-4580)	1276
	07-08	285 (234-346)	396 (327-469)	966 (843-1060)	1910 (1560-2410)	3040 (2730-3740)	1226
	09-10	274 (244-309)	362 (305-416)	907 (789-1100)	2200 (1730-2810)	3570 (2800-4200)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Enterolactone (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	194 (165-228)	254 (225-282)	605 (519-695)	1340 (969-1740)	2100 (1620-2790)	813
	01-02	259 (213-314)	362 (296-409)	730 (586-905)	1240 (1010-1490)	1630 (1240-2540)	679
	03-04	248 (217-282)	350 (310-403)	724 (657-826)	1320 (1020-1560)	1820 (1460-2170)	653
	05-06	324 (267-393)	379 (315-471)	773 (679-953)	1560 (1290-1680)	2060 (1630-2560)	634
	07-08	223 (185-268)	312 (267-379)	733 (642-871)	1330 (1110-1580)	1860 (1620-2160)	520
	09-10	208 (174-249)	284 (214-322)	624 (505-728)	1270 (1090-1460)	1870 (1460-2130)	604
Non-Hispanic blacks	99-00	168 (125-226)	214 (173-274)	546 (411-732)	1130 (874-1450)	1590 (1120-2560)	605
	01-02	195 (155-245)	302 (257-331)	562 (470-629)	985 (821-1130)	1490 (1080-1730)	706
	03-04	233 (197-274)	303 (276-347)	621 (512-707)	1050 (917-1350)	1550 (1170-2220)	699
	05-06	193 (167-223)	286 (252-331)	630 (556-729)	1120 (967-1230)	1490 (1220-1650)	662
	07-08	195 (144-264)	291 (191-408)	659 (564-741)	1220 (993-1360)	1480 (1350-2060)	562
	09-10	150 (113-200)	256 (183-328)	539 (457-659)	927 (757-1160)	1310 (1000-1720)	533
Non-Hispanic whites	99-00	241 (194-300)	323 (279-388)	828 (674-997)	1780 (1390-2020)	2490 (1930-3340)	917
	01-02	264 (232-301)	339 (299-393)	833 (719-944)	1530 (1340-1880)	2410 (1940-2800)	1222
	03-04	294 (246-353)	399 (326-488)	836 (707-980)	1660 (1330-2040)	2500 (1990-3350)	1079
	05-06	288 (238-347)	403 (326-500)	926 (809-1050)	1700 (1500-2200)	2930 (2230-3710)	1039
	07-08	276 (225-337)	386 (318-467)	911 (736-1100)	1870 (1370-2730)	2850 (2200-3640)	993
	09-10	264 (233-299)	329 (290-385)	895 (779-1030)	2140 (1640-2780)	3420 (2740-3990)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Equol (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	8.37 (7.21-9.72)	8.02 (6.27-9.90)	17.2 (15.2-19.8)	35.0 (28.9-41.6)	53.7 (40.1-74.2)	2182
	01-02	9.17 (7.76-10.8)	9.00 (7.40-10.5)	19.6 (16.6-23.5)	42.1 (34.3-51.5)	73.5 (53.6-89.2)	2794
	03-04	8.02 (7.07-9.10)	8.00 (6.80-9.40)	18.2 (15.2-20.8)	36.6 (31.3-40.0)	64.9 (45.4-97.9)	2590
	05-06	8.40 (7.63-9.24)	8.61 (7.89-9.17)	18.1 (16.4-20.4)	37.6 (33.9-41.8)	64.5 (54.8-85.3)	2527
	07-08	7.29 (6.21-8.57)	7.18 (6.18-8.44)	15.3 (12.5-18.5)	30.7 (24.5-43.2)	65.9 (50.7-131)	2424
	09-10	7.82 (6.91-8.85)	7.39 (6.59-8.34)	17.1 (14.9-18.9)	38.0 (33.9-42.4)	68.6 (52.4-95.6)	2792
Age group 6-11 years	99-00	10.5 (7.65-14.3)	11.7 (5.43-18.6)	24.9 (17.5-29.5)	34.4 (29.5-53.3)	56.1 (30.1-149)	272
	01-02	12.2 (10.2-14.6)	13.7 (11.1-16.2)	26.2 (17.9-37.9)	50.4 (35.0-84.3)	85.4 (50.4-159)	396
	03-04	12.4 (9.71-15.8)	12.1 (8.40-17.8)	24.4 (20.1-31.2)	46.7 (33.5-82.3)	85.8 (44.9-118)	341
	05-06	13.3 (11.3-15.7)	13.5 (12.1-16.8)	26.5 (20.8-34.1)	45.6 (39.3-69.6)	70.3 (44.7-144)	351
	07-08	10.9 (8.38-14.3)	11.3 (8.60-13.2)	22.0 (15.8-27.5)	55.9 (24.2-77.8)	73.3 (59.5-115)	360
	09-10	13.4 (9.85-18.4)	12.7 (9.01-16.7)	28.5 (22.6-41.8)	68.0 (45.3-179)	242 (68.0-598)	371
12-19 years	99-00	10.9 (8.64-13.8)	10.8 (8.52-13.4)	22.3 (16.0-34.9)	42.9 (34.1-71.3)	71.6 (48.1-210)	657
	01-02	10.2 (8.50-12.1)	10.5 (8.20-12.5)	20.5 (16.8-24.8)	43.1 (30.1-56.1)	70.0 (46.3-99.2)	744
	03-04	10.6 (8.97-12.4)	10.5 (8.70-12.2)	22.6 (19.3-26.4)	39.9 (34.8-45.1)	61.9 (45.1-113)	729
	05-06	11.6 (10.3-13.0)	11.4 (9.25-12.3)	23.2 (20.3-28.8)	46.3 (37.2-64.0)	81.8 (50.1-146)	693
	07-08	8.47 (7.19-9.98)	7.91 (6.79-9.30)	16.0 (12.8-19.0)	32.7 (24.5-43.2)	65.6 (33.6-148)	375
	09-10	11.4 (8.90-14.6)	9.60 (7.57-14.1)	24.6 (19.6-29.6)	48.0 (35.9-112)	220 (69.4-701)	447
20 years and older	99-00	7.79 (6.79-8.94)	7.43 (5.71-8.85)	16.0 (13.6-18.1)	33.1 (24.4-39.7)	52.2 (36.3-93.9)	1253
	01-02	8.70 (7.29-10.4)	8.00 (6.20-10.2)	18.6 (15.0-22.3)	41.3 (34.1-47.4)	73.5 (53.9-89.0)	1654
	03-04	7.28 (6.37-8.33)	7.20 (6.00-8.70)	16.0 (14.2-19.2)	33.9 (28.2-38.9)	63.0 (41.3-121)	1520
	05-06	7.58 (6.82-8.42)	7.57 (7.01-8.30)	16.6 (14.9-18.2)	33.6 (29.1-42.6)	58.1 (50.6-89.0)	1483
	07-08	6.82 (5.70-8.17)	6.75 (5.70-7.98)	14.3 (11.6-18.3)	28.9 (23.6-41.9)	65.8 (47.7-135)	1689
	09-10	6.97 (6.07-8.00)	6.72 (5.78-7.75)	15.0 (13.1-17.1)	33.2 (28.4-38.3)	57.7 (44.6-75.4)	1974
Gender Males	99-00	9.15 (7.37-11.4)	8.44 (6.36-11.2)	19.0 (15.9-24.0)	35.6 (29.2-54.8)	71.3 (39.7-166)	1042
	01-02	9.41 (7.99-11.1)	9.20 (7.70-10.8)	20.1 (16.7-26.1)	43.1 (32.4-53.1)	61.7 (51.8-81.5)	1375
	03-04	8.56 (7.54-9.72)	8.70 (7.20-10.2)	19.0 (15.9-21.6)	38.0 (31.9-44.2)	72.6 (45.4-100)	1240
	05-06	9.13 (7.99-10.4)	9.42 (8.16-10.8)	20.0 (16.7-23.8)	39.4 (33.8-45.3)	63.1 (52.0-88.1)	1252
	07-08	7.58 (6.40-8.97)	7.74 (6.62-8.80)	15.5 (12.5-18.2)	32.7 (24.5-41.9)	65.6 (47.7-133)	1198
	09-10	8.20 (7.14-9.42)	8.18 (6.86-9.67)	18.4 (15.2-21.3)	39.3 (31.4-48.0)	70.7 (53.4-112)	1377
Females	99-00	7.70 (6.79-8.75)	7.57 (5.79-9.04)	15.6 (12.7-18.9)	33.6 (26.7-37.7)	48.2 (37.1-62.9)	1140
	01-02	8.94 (7.38-10.8)	8.60 (6.70-10.7)	19.0 (15.6-22.9)	41.6 (33.3-51.5)	79.8 (56.6-122)	1419
	03-04	7.55 (6.44-8.84)	7.30 (6.20-9.00)	16.9 (14.7-19.8)	33.8 (28.3-40.0)	60.3 (42.5-116)	1350
	05-06	7.75 (6.85-8.78)	7.57 (6.87-8.37)	16.7 (15.0-18.0)	35.6 (30.9-43.1)	69.2 (51.7-125)	1275
	07-08	7.03 (5.84-8.47)	6.75 (5.85-7.85)	15.1 (12.3-19.0)	30.0 (24.4-48.3)	76.3 (49.5-163)	1226
	09-10	7.47 (6.33-8.81)	6.75 (5.70-7.85)	15.4 (13.1-18.5)	36.4 (29.4-45.3)	65.2 (46.4-130)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.0, 3.3, 0.3, 0.06, 0.06, and 0.06 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Equol (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	99-00	5.24 (4.77-5.76)	4.51 (3.65-5.18)	9.48 (7.96-10.3)	18.5 (14.5-22.6)	30.9 (21.6-48.4)	726
	01-02	7.22 (6.04-8.62)	6.50 (4.40-9.10)	14.2 (11.3-20.1)	31.4 (21.1-41.0)	42.4 (38.1-60.2)	679
	03-04	6.08 (5.08-7.28)	5.70 (4.70-6.80)	12.5 (9.80-15.4)	26.1 (18.1-39.7)	43.6 (34.3-88.2)	653
	05-06	6.04 (5.31-6.87)	6.13 (5.28-7.35)	13.3 (11.2-14.7)	25.2 (19.6-33.4)	47.6 (33.6-67.1)	634
	07-08	5.52 (5.02-6.07)	5.15 (4.71-5.86)	11.4 (10.1-14.0)	23.2 (20.2-30.3)	39.9 (30.7-60.9)	520
	09-10	5.07 (4.51-5.71)	5.13 (4.45-5.74)	11.1 (8.72-13.0)	20.2 (17.1-29.7)	46.3 (29.7-75.4)	604
Non-Hispanic blacks	99-00	6.73 (5.20-8.71)	6.24 (3.86-10.0)	15.1 (12.7-17.6)	27.6 (19.4-35.6)	36.4 (28.9-49.4)	514
	01-02	7.15 (6.06-8.43)	6.10 (4.70-7.60)	14.7 (12.0-18.7)	30.9 (22.8-41.9)	45.7 (36.1-90.5)	706
	03-04	7.35 (6.16-8.79)	7.90 (6.00-9.60)	16.5 (14.2-18.3)	32.0 (25.1-37.5)	47.0 (37.8-68.2)	696
	05-06	6.96 (5.89-8.22)	6.37 (5.44-7.95)	15.1 (11.7-20.2)	30.1 (23.8-39.4)	48.8 (38.7-64.9)	662
	07-08	6.73 (5.28-8.59)	6.69 (5.17-8.19)	15.2 (11.9-18.5)	31.3 (21.7-50.7)	72.0 (36.1-402)	562
	09-10	5.59 (4.98-6.27)	5.98 (5.37-6.48)	12.2 (10.8-14.2)	25.0 (21.6-31.0)	43.3 (32.4-53.7)	534
Non-Hispanic whites	99-00	9.26 (7.80-11.0)	8.98 (6.73-11.9)	19.0 (16.1-22.8)	36.2 (30.1-45.4)	56.1 (42.1-89.4)	758
	01-02	9.91 (7.95-12.4)	10.0 (7.30-12.6)	22.0 (17.4-27.4)	44.4 (35.1-57.5)	74.4 (55.1-107)	1222
	03-04	8.52 (7.26-10.0)	8.80 (7.10-10.3)	19.3 (15.4-23.0)	37.7 (31.7-44.2)	73.1 (46.7-120)	1078
	05-06	9.05 (8.08-10.1)	9.49 (8.47-10.4)	19.4 (16.6-23.2)	39.2 (33.9-45.1)	69.2 (52.2-130)	1038
	07-08	8.01 (6.45-9.93)	8.19 (6.59-9.49)	16.1 (12.5-21.7)	32.7 (24.1-55.9)	79.5 (47.7-152)	993
	09-10	9.45 (8.04-11.1)	9.15 (7.87-10.2)	19.3 (17.5-22.4)	41.3 (35.4-48.7)	75.4 (52.4-189)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.0, 3.3, 0.3, 0.06, 0.06, and 0.06 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Equol (creatinine corrected) (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	7.70 (6.82-8.70)	7.96 (6.87-9.35)	16.2 (13.2-18.6)	30.6 (26.9-35.1)	50.3 (41.8-67.3)	2182
	01-02	8.60 (7.26-10.2)	7.98 (6.62-9.76)	17.6 (14.8-21.8)	37.8 (30.3-46.3)	62.6 (50.0-85.0)	2794
	03-04	7.52 (6.83-8.29)	7.29 (6.56-8.18)	14.6 (13.3-15.7)	27.8 (24.7-31.9)	50.6 (39.9-75.0)	2590
	05-06	8.18 (7.33-9.14)	7.92 (7.01-8.76)	15.9 (14.2-17.4)	32.7 (29.9-35.1)	69.1 (48.4-105)	2527
	07-08	7.33 (6.34-8.48)	6.91 (6.13-7.86)	14.4 (12.2-16.7)	28.9 (23.5-37.4)	60.9 (40.5-93.1)	2424
	09-10	8.38 (7.52-9.33)	7.70 (6.80-8.69)	16.6 (15.3-18.1)	36.3 (30.5-44.5)	73.4 (54.2-122)	2791
Age group							
6-11 years	99-00	10.3 (7.83-13.5)	11.4 (7.46-16.3)	22.6 (14.7-27.2)	32.7 (25.5-46.0)	47.8 (32.7-150)	272
	01-02	13.9 (11.2-17.2)	14.0 (10.6-17.0)	28.8 (19.6-39.8)	54.4 (34.9-99.8)	88.2 (56.8-186)	396
	03-04	13.2 (10.9-15.9)	13.2 (9.19-17.5)	24.2 (20.6-28.0)	41.6 (35.2-64.1)	93.5 (45.4-117)	341
	05-06	14.7 (12.6-17.1)	15.3 (13.8-17.4)	26.2 (21.2-34.4)	48.0 (40.6-70.3)	88.9 (55.4-267)	351
	07-08	13.4 (10.8-16.6)	13.1 (10.6-15.2)	22.6 (16.9-32.8)	45.2 (28.8-84.4)	72.8 (45.8-199)	360
	09-10	18.3 (13.5-24.7)	15.7 (11.5-19.3)	42.0 (28.1-54.1)	84.1 (63.5-183)	232 (98.4-498)	370
12-19 years	99-00	7.61 (6.17-9.39)	8.02 (6.72-9.29)	14.0 (11.4-20.4)	27.5 (20.8-38.3)	47.4 (27.5-149)	657
	01-02	7.83 (6.68-9.17)	7.77 (6.29-9.13)	17.4 (14.9-19.2)	31.9 (25.3-41.7)	54.3 (33.0-76.7)	744
	03-04	7.91 (6.59-9.49)	8.11 (6.80-9.09)	14.5 (11.8-17.5)	30.1 (21.0-38.2)	40.6 (32.6-66.9)	729
	05-06	8.61 (7.54-9.83)	8.03 (7.00-9.21)	16.3 (13.4-19.0)	31.8 (25.3-37.6)	62.0 (37.0-129)	693
	07-08	6.51 (5.69-7.46)	5.83 (4.78-6.71)	12.6 (10.5-16.4)	28.7 (20.8-35.3)	50.4 (30.7-72.7)	375
	09-10	10.7 (8.50-13.5)	8.95 (7.40-10.3)	20.6 (15.9-23.3)	46.3 (31.3-101)	215 (58.9-919)	447
20 years and older	99-00	7.45 (6.60-8.41)	7.63 (6.35-9.22)	15.3 (12.7-17.7)	30.8 (25.0-37.2)	53.2 (41.2-71.8)	1253
	01-02	8.23 (6.93-9.79)	7.52 (5.97-9.56)	16.6 (14.0-20.7)	36.4 (29.3-42.9)	58.7 (47.9-85.0)	1654
	03-04	6.98 (6.30-7.73)	6.76 (6.05-7.65)	13.6 (12.5-14.8)	24.6 (21.9-29.4)	42.8 (35.7-81.6)	1520
	05-06	7.60 (6.72-8.59)	7.43 (6.63-8.21)	14.1 (12.4-16.4)	30.1 (23.9-34.9)	65.9 (42.7-123)	1483
	07-08	7.00 (5.90-8.31)	6.64 (5.73-7.57)	13.2 (11.2-16.2)	26.4 (21.6-38.4)	57.7 (38.4-97.0)	1689
	09-10	7.43 (6.61-8.34)	6.97 (6.09-8.08)	15.0 (13.5-16.7)	29.2 (25.3-34.5)	54.7 (41.4-75.7)	1974
Gender							
Males	99-00	7.01 (5.93-8.29)	7.32 (5.63-8.78)	13.8 (11.7-17.6)	29.3 (21.4-41.8)	54.1 (35.8-81.0)	1042
	01-02	7.66 (6.39-9.18)	7.43 (5.81-9.16)	16.2 (14.0-19.4)	32.9 (27.9-40.4)	54.3 (37.8-67.1)	1375
	03-04	6.71 (6.02-7.47)	6.63 (5.78-7.29)	13.3 (11.9-15.5)	25.7 (23.1-30.3)	51.1 (37.1-76.7)	1240
	05-06	7.35 (6.40-8.43)	7.03 (5.90-8.67)	14.9 (12.0-18.3)	31.4 (26.8-34.0)	57.6 (42.7-83.5)	1252
	07-08	6.39 (5.52-7.41)	6.10 (5.28-6.85)	12.2 (10.6-14.3)	25.7 (20.4-33.0)	48.4 (35.3-77.1)	1198
	09-10	7.49 (6.54-8.59)	6.90 (5.98-8.20)	15.7 (14.1-17.3)	32.4 (25.3-44.1)	73.4 (44.2-130)	1376
Females	99-00	8.41 (7.33-9.66)	8.71 (7.33-10.1)	17.7 (15.1-20.0)	31.6 (27.5-37.2)	46.3 (41.0-56.5)	1140
	01-02	9.60 (7.99-11.5)	8.66 (6.97-10.6)	19.2 (15.7-23.7)	41.7 (32.3-55.9)	85.0 (61.7-115)	1419
	03-04	8.38 (7.39-9.51)	8.29 (7.03-9.28)	15.1 (14.0-16.6)	30.6 (25.0-32.5)	45.4 (38.7-102)	1350
	05-06	9.07 (8.04-10.2)	8.49 (7.90-9.22)	16.7 (15.3-18.1)	34.3 (29.9-40.7)	85.1 (48.4-144)	1275
	07-08	8.35 (6.98-9.99)	7.97 (6.83-9.31)	16.0 (13.4-20.0)	32.8 (23.7-46.1)	67.5 (41.6-167)	1226
	09-10	9.34 (7.98-10.9)	8.44 (7.24-9.76)	17.4 (15.1-20.4)	39.6 (30.7-54.2)	72.9 (51.6-158)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Equol (creatinine corrected) (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	4.89 (4.36-5.47)	4.73 (3.90-5.27)	8.85 (8.18-9.91)	22.3 (16.5-26.8)	37.1 (25.3-57.6)	726
	01-02	6.79 (5.82-7.92)	6.81 (5.55-8.04)	14.9 (11.7-17.8)	29.1 (22.9-36.0)	41.3 (31.4-47.1)	679
	03-04	5.48 (4.60-6.54)	4.72 (3.95-5.78)	10.1 (7.76-13.4)	24.4 (17.2-30.9)	35.6 (27.6-102)	653
	05-06	5.45 (4.84-6.14)	5.00 (4.37-5.85)	9.94 (8.80-12.4)	22.3 (19.3-30.0)	39.4 (30.0-61.9)	634
	07-08	5.42 (4.82-6.09)	4.87 (4.28-5.66)	10.9 (9.21-12.2)	20.9 (17.0-26.9)	34.9 (26.9-60.9)	520
	09-10	5.33 (4.60-6.18)	5.00 (4.17-6.16)	9.49 (8.54-11.2)	19.6 (15.1-35.6)	48.5 (30.3-126)	604
Non-Hispanic blacks	99-00	4.36 (3.41-5.57)	4.57 (2.94-6.23)	10.2 (7.96-12.0)	17.1 (14.8-19.8)	26.0 (19.6-32.0)	514
	01-02	5.01 (4.26-5.89)	4.48 (3.80-5.42)	11.0 (8.80-13.0)	22.7 (16.5-29.3)	35.4 (24.8-46.7)	706
	03-04	5.23 (4.44-6.16)	5.28 (4.67-6.10)	10.3 (8.61-12.3)	20.2 (17.1-23.8)	29.4 (23.9-42.3)	696
	05-06	4.88 (4.11-5.78)	4.72 (3.55-6.00)	9.40 (7.54-12.0)	21.5 (16.8-24.4)	31.6 (24.4-51.4)	662
	07-08	5.21 (4.11-6.61)	4.73 (3.77-6.22)	9.81 (7.77-12.7)	19.3 (14.7-28.8)	50.6 (24.2-314)	562
	09-10	4.50 (4.03-5.01)	4.57 (3.80-5.29)	9.76 (8.00-11.3)	18.4 (15.6-22.3)	26.8 (22.8-29.7)	533
Non-Hispanic whites	99-00	9.13 (7.85-10.6)	9.51 (7.63-11.2)	18.0 (15.2-21.6)	35.4 (29.5-41.3)	56.5 (46.0-73.0)	758
	01-02	9.81 (7.93-12.1)	9.17 (7.06-12.2)	19.8 (15.4-25.6)	41.3 (30.7-55.9)	66.4 (56.8-85.0)	1222
	03-04	8.40 (7.50-9.41)	8.17 (7.13-9.19)	15.6 (14.1-17.1)	30.6 (25.0-32.8)	56.8 (38.0-107)	1078
	05-06	9.51 (8.48-10.7)	9.17 (8.06-10.5)	17.1 (15.0-19.4)	34.5 (31.0-40.6)	77.7 (48.4-129)	1038
	07-08	8.33 (6.76-10.3)	7.94 (6.62-9.61)	15.7 (12.5-20.4)	30.7 (23.4-46.1)	65.2 (38.9-144)	993
	09-10	10.6 (9.17-12.2)	9.69 (8.74-10.8)	20.5 (17.8-22.5)	44.2 (33.4-60.8)	84.1 (60.3-187)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Genistein (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	24.4 (19.7-30.3)	27.0 (22.5-32.8)	93.6 (75.8-118)	284 (244-331)	563 (413-709)	2557
	01-02	33.0 (30.1-36.2)	29.0 (26.8-31.8)	92.5 (77.9-109)	306 (240-372)	619 (523-719)	2794
	03-04	31.1 (29.0-33.3)	26.2 (23.9-29.7)	87.8 (78.8-102)	286 (239-313)	528 (402-610)	2594
	05-06	28.7 (25.8-32.0)	26.0 (20.9-29.7)	81.0 (73.3-92.4)	261 (232-308)	523 (422-591)	2528
	07-08	31.3 (27.3-35.8)	25.7 (22.8-28.9)	89.7 (73.4-109)	309 (227-411)	665 (527-999)	2424
	09-10	32.5 (29.3-36.2)	28.2 (23.2-33.1)	102 (88.8-120)	356 (295-428)	691 (530-1060)	2792
Age group 6-11 years	99-00	27.6 (21.1-36.1)	31.9 (18.1-42.6)	104 (67.6-151)	220 (151-315)	376 (272-725)	331
	01-02	39.2 (33.4-46.0)	31.7 (25.8-39.6)	94.1 (62.3-158)	258 (190-426)	502 (258-830)	396
	03-04	33.6 (27.8-40.6)	29.3 (23.1-37.8)	79.4 (56.7-111)	193 (146-274)	351 (207-376)	341
	05-06	38.6 (29.8-49.9)	34.6 (25.3-42.5)	109 (76.6-181)	367 (252-568)	629 (367-2390)	351
	07-08	43.7 (32.6-58.5)	34.3 (22.1-56.4)	139 (82.5-194)	505 (251-763)	840 (505-2200)	360
	09-10	46.1 (37.8-56.3)	38.4 (30.7-46.9)	167 (96.9-253)	467 (280-616)	958 (528-1210)	371
12-19 years	99-00	43.7 (34.2-55.7)	45.4 (34.3-60.5)	138 (93.7-179)	319 (245-464)	547 (321-777)	754
	01-02	34.1 (27.2-42.8)	29.0 (26.1-32.9)	90.6 (71.5-113)	278 (216-363)	470 (360-687)	744
	03-04	34.7 (29.3-41.0)	29.0 (23.4-37.6)	111 (69.3-141)	304 (206-376)	530 (358-671)	729
	05-06	34.1 (28.8-40.5)	26.9 (20.5-35.6)	90.5 (76.1-115)	307 (209-394)	486 (372-982)	693
	07-08	35.2 (28.5-43.5)	28.4 (23.7-34.5)	111 (63.7-138)	279 (160-483)	538 (320-954)	375
	09-10	39.2 (29.5-52.0)	34.4 (23.5-47.1)	141 (77.0-188)	373 (242-520)	620 (445-1160)	447
20 years and older	99-00	21.9 (17.6-27.2)	24.0 (21.7-28.4)	86.2 (67.5-108)	293 (235-343)	566 (412-744)	1472
	01-02	32.1 (28.8-35.8)	28.8 (25.4-33.4)	93.4 (77.3-110)	312 (235-389)	627 (537-790)	1654
	03-04	30.2 (27.8-32.8)	25.9 (22.3-29.8)	87.8 (77.9-103)	296 (239-321)	557 (412-653)	1524
	05-06	27.0 (23.9-30.6)	25.0 (19.8-28.8)	77.4 (66.7-89.5)	244 (190-308)	518 (413-591)	1484
	07-08	29.6 (25.4-34.5)	24.7 (21.3-28.4)	84.1 (68.0-98.0)	278 (207-422)	671 (512-1150)	1689
	09-10	30.5 (26.7-34.8)	26.3 (20.3-31.7)	97.5 (77.3-115)	327 (281-425)	691 (523-1110)	1974
Gender Males	99-00	29.8 (22.2-40.0)	31.9 (26.3-37.2)	108 (79.1-151)	335 (257-440)	709 (437-981)	1222
	01-02	32.2 (27.9-37.2)	29.5 (25.4-33.7)	91.2 (73.4-103)	239 (190-331)	474 (335-719)	1375
	03-04	33.7 (29.6-38.4)	27.3 (23.4-33.0)	92.6 (68.6-124)	310 (228-351)	562 (443-653)	1244
	05-06	32.1 (28.6-36.0)	29.1 (22.7-33.8)	90.2 (77.5-101)	269 (216-340)	494 (394-591)	1252
	07-08	33.3 (27.7-40.0)	26.2 (22.3-31.2)	98.0 (71.9-119)	316 (220-477)	723 (501-1510)	1198
	09-10	33.5 (29.3-38.2)	28.8 (23.6-35.5)	89.8 (74.7-114)	351 (286-425)	623 (476-967)	1377
Females	99-00	20.3 (17.0-24.2)	23.1 (20.1-26.3)	84.7 (59.6-105)	242 (203-288)	446 (339-619)	1335
	01-02	33.7 (30.9-36.8)	28.7 (26.0-32.3)	97.0 (79.9-118)	387 (253-500)	666 (598-807)	1419
	03-04	28.7 (25.5-32.4)	25.0 (22.4-28.4)	85.0 (71.2-106)	256 (218-308)	467 (356-620)	1350
	05-06	25.9 (22.3-29.9)	22.4 (17.9-27.4)	74.5 (61.0-87.0)	246 (195-329)	526 (398-657)	1276
	07-08	29.5 (25.1-34.6)	24.6 (22.2-28.4)	83.5 (63.7-109)	296 (194-432)	661 (448-964)	1226
	09-10	31.7 (27.6-36.4)	27.0 (21.8-32.1)	115 (101-129)	371 (290-489)	826 (523-1530)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.8, 0.3, 1.0, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Genistein (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	31.1 (25.1-38.5)	30.0 (25.1-37.3)	117 (82.9-179)	328 (248-494)	573 (419-1180)	819
	01-02	28.3 (22.0-36.4)	25.6 (19.6-32.5)	74.8 (48.8-111)	225 (174-314)	424 (323-523)	679
	03-04	31.1 (27.5-35.2)	25.2 (19.1-32.6)	83.2 (63.6-120)	319 (252-537)	653 (537-851)	653
	05-06	27.6 (24.4-31.2)	26.6 (21.5-30.2)	77.0 (63.3-87.3)	255 (187-319)	412 (320-568)	634
	07-08	30.5 (24.3-38.4)	24.0 (18.9-30.2)	86.8 (68.0-123)	318 (210-414)	603 (414-1130)	520
	09-10	28.7 (23.7-34.7)	24.2 (18.4-32.3)	84.8 (57.8-120)	257 (197-327)	484 (334-623)	604
Non-Hispanic blacks	99-00	26.7 (19.2-37.0)	32.9 (24.4-41.5)	103 (84.8-137)	257 (213-367)	495 (329-926)	608
	01-02	37.6 (27.4-51.6)	35.3 (23.6-49.5)	95.5 (71.1-142)	378 (192-530)	598 (375-1120)	706
	03-04	32.3 (24.0-43.4)	27.4 (18.8-44.9)	84.8 (60.5-113)	279 (163-412)	514 (323-852)	699
	05-06	31.0 (26.7-36.1)	27.9 (23.0-34.9)	92.3 (69.3-106)	265 (187-355)	458 (371-643)	662
	07-08	36.2 (29.3-44.7)	27.3 (22.6-36.8)	124 (84.3-157)	395 (310-530)	912 (567-1490)	562
	09-10	33.5 (29.0-38.6)	27.8 (23.2-36.4)	99.6 (79.3-120)	321 (218-392)	625 (410-1010)	534
Non-Hispanic whites	99-00	23.6 (19.1-29.3)	25.6 (21.7-32.0)	91.4 (68.0-122)	288 (227-353)	566 (395-734)	917
	01-02	30.9 (27.8-34.4)	27.6 (24.6-30.8)	89.7 (71.1-105)	278 (226-365)	626 (485-755)	1222
	03-04	30.8 (28.2-33.6)	26.2 (22.6-31.0)	93.6 (78.8-112)	279 (225-313)	504 (376-610)	1079
	05-06	26.9 (23.6-30.6)	23.8 (19.0-29.1)	77.2 (66.2-87.9)	244 (198-316)	518 (391-609)	1039
	07-08	29.3 (25.2-34.0)	25.2 (22.1-28.5)	84.1 (65.8-102)	235 (182-346)	620 (446-840)	993
	09-10	31.9 (27.4-37.2)	28.3 (21.3-34.6)	102 (75.4-125)	334 (280-450)	691 (501-1060)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.8, 0.3, 1.0, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Genistein (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	22.3 (17.7-28.1)	23.8 (18.8-28.9)	84.7 (67.2-105)	222 (182-279)	381 (334-497)	2557
	01-02	30.9 (28.5-33.6)	25.9 (23.4-29.2)	83.3 (72.2-96.3)	256 (211-296)	427 (375-490)	2794
	03-04	29.1 (27.3-31.0)	24.5 (21.3-27.4)	77.7 (67.3-90.9)	231 (203-279)	510 (388-619)	2594
	05-06	28.0 (25.3-31.0)	23.2 (20.3-26.4)	72.0 (63.1-85.2)	242 (197-280)	577 (406-734)	2528
	07-08	31.4 (27.3-36.1)	23.7 (21.0-27.7)	85.2 (70.3-99.5)	264 (214-375)	751 (464-1130)	2424
	09-10	34.9 (31.6-38.4)	25.4 (22.8-30.0)	100 (83.3-124)	367 (313-424)	863 (612-1090)	2791
Age group 6-11 years	99-00	28.3 (21.1-37.9)	27.8 (15.8-41.3)	94.3 (60.5-145)	209 (148-317)	490 (279-895)	331
	01-02	44.5 (37.0-53.5)	37.9 (29.7-49.0)	112 (76.5-146)	252 (173-371)	504 (252-713)	396
	03-04	35.8 (29.7-43.0)	35.4 (24.9-43.2)	78.6 (60.9-119)	172 (130-243)	297 (168-618)	341
	05-06	42.5 (33.1-54.6)	34.1 (23.7-41.9)	138 (89.5-195)	414 (256-850)	1040 (429-1590)	351
	07-08	53.5 (41.5-69.0)	44.2 (33.0-63.9)	149 (83.2-224)	451 (236-937)	940 (411-1800)	360
	09-10	62.8 (52.5-75.1)	47.8 (36.7-63.0)	200 (144-249)	493 (405-644)	875 (551-1140)	370
12-19 years	99-00	29.4 (22.3-38.8)	32.0 (23.8-41.6)	83.2 (64.1-104)	184 (130-295)	336 (184-816)	754
	01-02	26.3 (21.3-32.5)	21.0 (17.8-26.5)	66.2 (47.9-91.5)	200 (149-298)	321 (261-435)	744
	03-04	25.9 (21.8-30.9)	21.8 (17.0-29.1)	65.6 (51.0-83.1)	201 (145-313)	366 (297-455)	729
	05-06	25.3 (22.1-29.0)	19.6 (16.4-24.0)	76.5 (51.4-91.6)	164 (130-249)	368 (213-520)	693
	07-08	27.1 (23.1-31.7)	23.7 (17.8-29.3)	77.7 (56.2-95.3)	159 (125-264)	324 (214-568)	375
	09-10	36.8 (28.5-47.7)	27.6 (20.4-40.1)	102 (67.5-174)	371 (234-455)	848 (424-1100)	447
20 years and older	99-00	20.6 (16.3-26.2)	21.6 (17.7-26.2)	83.1 (64.9-107)	234 (190-287)	381 (325-562)	1472
	01-02	30.4 (27.6-33.4)	24.8 (21.9-30.0)	83.1 (68.5-99.0)	269 (208-328)	435 (374-518)	1654
	03-04	28.9 (26.7-31.3)	24.0 (20.1-27.4)	78.5 (66.1-92.9)	253 (209-302)	542 (399-673)	1524
	05-06	27.1 (24.3-30.3)	23.0 (19.7-26.8)	70.3 (61.2-81.3)	233 (184-275)	575 (349-762)	1484
	07-08	30.4 (25.8-35.8)	22.8 (19.9-25.9)	81.2 (63.2-99.5)	263 (205-423)	842 (464-1310)	1689
	09-10	32.5 (28.9-36.5)	23.1 (20.5-28.2)	91.9 (72.8-116)	340 (295-409)	863 (590-1150)	1974
Gender Males	99-00	23.3 (16.8-32.3)	23.8 (17.5-32.2)	86.2 (64.7-115)	236 (178-330)	523 (323-889)	1222
	01-02	26.2 (23.1-29.8)	22.0 (19.4-26.0)	67.6 (57.4-78.1)	186 (144-237)	350 (278-418)	1375
	03-04	26.4 (22.8-30.5)	21.5 (17.3-26.2)	70.0 (51.1-90.5)	203 (159-235)	415 (346-600)	1244
	05-06	25.8 (23.4-28.4)	22.8 (19.3-26.4)	65.0 (54.6-82.2)	207 (154-261)	431 (305-628)	1252
	07-08	28.1 (23.4-33.7)	20.9 (17.6-24.8)	76.1 (58.9-92.9)	249 (174-369)	634 (370-1130)	1198
	09-10	30.6 (27.3-34.3)	23.5 (20.7-27.5)	78.7 (63.0-101)	313 (241-370)	631 (453-1020)	1376
Females	99-00	21.3 (17.5-26.0)	23.2 (17.5-29.3)	83.1 (57.2-106)	211 (154-283)	357 (283-398)	1335
	01-02	36.2 (32.8-39.9)	29.6 (25.2-34.3)	107 (88.4-129)	321 (269-355)	547 (427-729)	1419
	03-04	31.9 (28.7-35.5)	27.1 (23.6-31.6)	87.1 (71.1-102)	278 (209-324)	548 (363-763)	1350
	05-06	30.3 (25.8-35.5)	23.5 (19.8-29.1)	81.3 (67.4-104)	271 (208-406)	658 (444-894)	1276
	07-08	35.0 (30.1-40.8)	27.7 (23.0-34.7)	95.6 (80.3-107)	290 (220-506)	842 (506-1350)	1226
	09-10	39.6 (35.2-44.5)	29.4 (23.9-35.5)	131 (101-151)	430 (340-542)	944 (670-1540)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary Genistein (creatinine corrected) (1999 – 2010)‡

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	28.4 (23.3-34.7)	27.9 (22.5-35.0)	109 (91.5-137)	257 (209-380)	562 (257-981)	819
	01-02	26.6 (21.6-32.9)	21.0 (16.1-28.9)	61.6 (50.6-76.8)	205 (147-270)	372 (271-479)	679
	03-04	28.0 (24.8-31.8)	23.5 (18.5-28.1)	69.2 (52.3-92.8)	254 (187-390)	608 (417-764)	653
	05-06	24.9 (22.1-28.0)	21.7 (17.8-23.8)	72.4 (56.2-90.2)	202 (140-274)	338 (275-648)	634
	07-08	30.0 (23.2-38.8)	22.5 (16.5-30.5)	88.3 (55.4-127)	287 (210-373)	583 (385-921)	520
	09-10	30.1 (25.4-35.7)	23.2 (19.0-30.5)	79.2 (60.6-108)	262 (192-353)	601 (371-818)	604
Non-Hispanic blacks	99-00	17.1 (12.4-23.7)	19.5 (15.7-26.1)	59.5 (43.1-93.7)	179 (132-245)	299 (222-446)	608
	01-02	26.4 (19.3-36.1)	22.7 (16.4-33.6)	69.4 (42.2-115)	217 (139-317)	384 (217-747)	706
	03-04	22.8 (18.1-28.8)	19.6 (14.3-27.1)	55.0 (39.6-78.1)	182 (107-240)	311 (210-514)	699
	05-06	21.7 (18.8-25.1)	18.6 (14.9-21.6)	55.3 (42.6-78.7)	157 (124-235)	351 (235-543)	662
	07-08	28.0 (22.5-34.9)	20.8 (15.9-25.9)	91.2 (63.7-112)	252 (184-413)	668 (310-1530)	562
	09-10	26.9 (23.7-30.6)	19.5 (17.6-23.1)	78.0 (58.1-107)	245 (158-341)	505 (341-879)	533
Non-Hispanic whites	99-00	23.2 (18.5-29.0)	24.9 (19.0-31.7)	86.1 (68.4-105)	232 (178-295)	381 (325-523)	917
	01-02	30.6 (28.2-33.2)	25.4 (22.7-29.5)	82.0 (68.3-96.3)	248 (207-320)	427 (365-518)	1222
	03-04	30.4 (27.9-33.0)	26.2 (21.5-31.4)	79.6 (69.1-99.6)	238 (195-321)	534 (352-688)	1079
	05-06	28.2 (25.1-31.8)	23.5 (19.8-29.0)	71.7 (58.9-89.6)	242 (192-305)	615 (423-802)	1039
	07-08	30.5 (25.8-36.0)	23.7 (20.2-28.3)	80.1 (63.4-96.6)	256 (185-369)	651 (412-1010)	993
	09-10	35.8 (31.2-41.0)	25.6 (22.5-32.7)	107 (78.5-140)	398 (304-448)	881 (576-1300)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary O-Desmethylangolensin (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	4.39 (3.37-5.73)	4.98 (3.65-6.77)	22.7 (18.7-30.1)	100 (74.8-141)	222 (182-250)	2271
	01-02	4.08 (3.53-4.73)	3.30 (2.70-4.20)	19.8 (16.7-24.6)	96.0 (70.1-135)	260 (161-437)	2794
	03-04	4.91 (4.34-5.55)	4.60 (4.00-5.20)	23.6 (18.6-27.2)	95.9 (70.7-122)	230 (185-342)	2581
	05-06	4.71 (4.17-5.31)	3.80 (3.10-4.30)	22.5 (19.7-26.6)	101 (86.4-124)	266 (200-385)	2528
	07-08	4.65 (4.02-5.39)	3.40 (2.90-4.20)	23.0 (17.9-29.8)	132 (98.2-181)	328 (236-501)	2424
	09-10	4.73 (4.08-5.48)	3.60 (2.90-4.30)	21.8 (16.8-28.4)	125 (99.2-156)	394 (237-615)	2792
Age group 6-11 years	99-00	5.60 (3.85-8.15)	7.52 (3.43-15.2)	36.2 (20.3-45.0)	78.7 (43.4-191)	176 (74.8-264)	287
	01-02	6.19 (4.51-8.49)	5.90 (3.80-9.30)	26.9 (15.7-52.1)	122 (61.5-215)	281 (161-466)	396
	03-04	6.33 (4.30-9.30)	6.10 (3.50-10.6)	24.0 (17.0-33.8)	70.8 (51.4-122)	138 (80.9-256)	341
	05-06	7.20 (5.20-9.96)	6.20 (4.00-11.0)	37.8 (24.2-55.2)	145 (83.9-295)	386 (201-516)	351
	07-08	7.50 (5.43-10.4)	5.40 (3.90-9.70)	34.5 (16.5-52.6)	133 (79.9-275)	490 (133-3020)	360
	09-10	7.85 (6.20-9.94)	7.00 (4.30-11.7)	34.9 (27.7-49.6)	153 (89.1-199)	263 (167-467)	371
12-19 years	99-00	6.04 (3.76-9.70)	7.60 (5.13-13.5)	36.6 (22.0-57.3)	107 (63.4-165)	194 (107-238)	667
	01-02	5.92 (4.46-7.87)	5.20 (3.70-7.60)	33.6 (18.0-56.8)	125 (91.2-172)	299 (172-435)	744
	03-04	6.37 (4.95-8.18)	5.30 (3.80-8.10)	33.9 (18.2-50.5)	110 (82.2-198)	257 (175-415)	729
	05-06	8.50 (6.48-11.2)	8.10 (5.50-11.6)	41.3 (33.6-49.6)	105 (80.2-213)	385 (139-829)	693
	07-08	4.74 (3.00-7.48)	3.80 (2.20-7.20)	20.6 (11.2-34.6)	105 (29.5-357)	328 (78.1-638)	375
	09-10	6.40 (4.93-8.31)	5.30 (4.00-7.70)	26.8 (16.6-47.8)	117 (77.8-165)	377 (156-965)	447
20 years and older	99-00	4.05 (3.12-5.26)	4.46 (3.31-5.64)	19.8 (16.0-26.5)	101 (80.8-150)	228 (179-259)	1317
	01-02	3.65 (3.08-4.32)	2.80 (2.30-3.70)	17.0 (13.9-22.4)	81.5 (63.0-128)	260 (135-526)	1654
	03-04	4.56 (4.02-5.17)	4.40 (3.60-4.90)	22.0 (17.8-25.6)	94.0 (67.6-131)	230 (187-398)	1511
	05-06	4.09 (3.51-4.77)	3.20 (2.60-4.00)	17.9 (14.9-22.3)	91.2 (72.3-124)	248 (182-302)	1484
	07-08	4.41 (3.72-5.22)	3.20 (2.40-4.20)	23.0 (17.5-30.7)	133 (93.3-187)	320 (206-589)	1689
	09-10	4.28 (3.59-5.11)	3.00 (2.40-3.90)	19.3 (14.9-27.0)	127 (95.2-159)	438 (225-681)	1974
Gender Males	99-00	4.97 (3.71-6.66)	5.62 (4.12-8.73)	29.1 (19.8-42.9)	121 (74.1-190)	235 (177-332)	1087
	01-02	3.81 (3.08-4.71)	3.30 (2.60-4.50)	17.4 (13.2-24.6)	82.8 (58.4-116)	194 (123-324)	1375
	03-04	4.90 (3.93-6.12)	4.60 (3.40-5.50)	23.0 (16.6-30.1)	92.9 (70.7-129)	222 (159-332)	1240
	05-06	4.93 (4.13-5.89)	4.00 (3.40-5.50)	22.3 (16.7-28.1)	90.8 (63.5-137)	235 (171-311)	1252
	07-08	4.49 (3.67-5.49)	3.10 (2.50-4.10)	22.1 (14.5-33.7)	117 (81.4-194)	293 (195-589)	1198
	09-10	4.39 (3.46-5.59)	3.30 (2.40-4.40)	18.1 (14.5-24.3)	99.2 (65.2-142)	293 (153-615)	1377
Females	99-00	3.92 (2.97-5.16)	4.22 (3.18-5.51)	19.4 (14.1-26.1)	83.8 (61.1-114)	192 (123-250)	1184
	01-02	4.36 (3.64-5.23)	3.40 (2.50-4.60)	21.3 (16.8-29.2)	107 (70.6-199)	394 (230-746)	1419
	03-04	4.91 (4.26-5.66)	4.60 (3.90-5.50)	23.9 (18.1-27.4)	99.3 (63.5-155)	283 (160-433)	1341
	05-06	4.50 (3.90-5.20)	3.30 (2.70-4.30)	22.8 (17.9-28.3)	121 (83.2-168)	284 (182-499)	1276
	07-08	4.82 (4.03-5.75)	3.90 (2.90-5.30)	24.6 (18.1-33.9)	137 (99.3-195)	362 (236-468)	1226
	09-10	5.09 (4.19-6.18)	3.90 (2.70-5.00)	28.5 (18.4-42.8)	152 (110-230)	494 (309-766)	1415

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary O-Desmethylangolensin (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	2.41 (1.55-3.73)	2.14 (1.31-3.37)	21.0 (10.6-30.5)	97.6 (59.7-140)	191 (122-320)	721
	01-02	2.44 (1.51-3.94)	1.40 (.500-3.40)	13.1 (5.80-27.6)	66.4 (33.5-102)	152 (75.8-265)	679
	03-04	2.54 (1.86-3.48)	1.90 (1.00-3.40)	14.4 (9.00-18.1)	62.3 (40.3-99.5)	146 (99.5-254)	652
	05-06	3.04 (2.29-4.05)	2.10 (1.40-2.90)	14.5 (8.20-24.7)	62.8 (39.1-104)	158 (87.0-246)	634
	07-08	3.16 (2.40-4.15)	2.50 (1.50-3.30)	14.7 (10.5-20.7)	84.9 (52.1-152)	211 (159-340)	520
	09-10	3.44 (2.78-4.27)	2.70 (2.10-3.50)	15.2 (10.6-21.2)	93.1 (63.5-114)	216 (127-294)	604
Non-Hispanic blacks	99-00	5.74 (4.55-7.24)	8.71 (5.82-10.9)	33.5 (22.1-52.4)	108 (78.3-156)	192 (149-255)	538
	01-02	5.35 (4.00-7.14)	5.30 (2.90-7.30)	32.7 (22.0-52.4)	128 (75.9-216)	308 (150-436)	706
	03-04	5.49 (4.05-7.46)	4.20 (3.30-6.10)	26.1 (13.4-49.0)	117 (86.2-166)	221 (177-354)	698
	05-06	5.83 (4.49-7.58)	4.90 (3.90-6.30)	32.6 (21.2-46.7)	110 (72.4-189)	297 (162-398)	662
	07-08	6.63 (4.50-9.75)	5.80 (3.90-9.10)	40.8 (23.6-63.3)	183 (119-230)	347 (199-822)	562
	09-10	5.03 (3.75-6.74)	4.30 (2.90-6.00)	27.0 (16.7-35.9)	120 (80.5-168)	293 (168-464)	534
Non-Hispanic whites	99-00	4.50 (3.26-6.22)	4.99 (3.43-7.10)	22.5 (17.1-34.4)	103 (72.0-152)	228 (177-259)	826
	01-02	4.13 (3.43-4.96)	3.40 (2.60-4.40)	17.9 (15.5-23.8)	98.7 (67.4-153)	260 (153-526)	1222
	03-04	5.27 (4.63-5.99)	5.30 (4.40-6.00)	24.2 (18.8-28.5)	99.5 (67.6-149)	246 (183-409)	1070
	05-06	4.72 (4.09-5.45)	3.80 (3.20-4.70)	21.9 (17.5-27.6)	97.7 (72.3-142)	246 (181-363)	1039
	07-08	4.67 (3.88-5.62)	3.50 (2.80-4.60)	21.3 (16.9-27.8)	113 (79.9-193)	357 (193-628)	993
	09-10	4.95 (4.20-5.84)	3.70 (2.90-4.50)	20.4 (16.0-30.1)	139 (97.5-156)	471 (206-766)	1186

Limit of detection (LOD, see Data Analysis section) for Survey years 99-00, 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.2, 0.4, 0.2, 0.2, 0.2, and 0.2 respectively.

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary O-Desmethylangolensin (creatinine corrected) (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	99-00	4.03 (2.97-5.45)	4.44 (3.10-6.35)	21.8 (15.3-31.6)	90.4 (62.9-122)	167 (140-218)	2271
	01-02	3.83 (3.32-4.43)	3.24 (2.55-4.12)	18.9 (16.1-23.2)	85.2 (65.1-117)	281 (149-412)	2794
	03-04	4.58 (4.20-5.01)	4.09 (3.53-4.59)	19.6 (17.4-22.6)	92.9 (76.5-120)	201 (183-261)	2581
	05-06	4.59 (4.04-5.21)	3.70 (3.12-4.42)	20.7 (18.4-22.8)	95.6 (78.0-129)	215 (180-325)	2528
	07-08	4.68 (4.04-5.41)	3.51 (3.06-4.02)	22.5 (16.7-30.5)	125 (94.8-164)	350 (199-523)	2424
	09-10	5.07 (4.38-5.87)	3.78 (3.06-4.61)	23.6 (19.3-29.7)	138 (101-185)	433 (285-547)	2791
Age group 6-11 years	99-00	6.00 (4.04-8.91)	7.15 (3.94-16.6)	28.8 (14.3-45.0)	83.3 (45.0-167)	179 (88.2-262)	287
	01-02	7.03 (5.05-9.77)	6.49 (4.24-11.6)	29.9 (16.3-54.1)	101 (75.3-199)	305 (134-464)	396
	03-04	6.73 (4.55-9.97)	5.97 (4.09-8.28)	27.7 (15.6-42.3)	86.1 (45.2-135)	149 (84.3-189)	341
	05-06	7.93 (5.73-11.0)	7.15 (3.90-11.3)	40.9 (27.5-55.9)	164 (85.8-280)	346 (215-497)	351
	07-08	9.20 (6.70-12.6)	6.81 (5.05-10.7)	31.1 (20.1-58.9)	164 (100-296)	465 (175-2310)	360
	09-10	10.7 (8.43-13.6)	9.58 (5.71-13.9)	43.0 (31.3-63.3)	201 (111-260)	330 (226-478)	370
12-19 years	99-00	4.13 (2.33-7.35)	5.71 (2.82-11.5)	26.0 (14.7-44.4)	71.4 (40.8-122)	122 (75.2-262)	667
	01-02	4.57 (3.44-6.07)	3.88 (2.82-5.32)	26.0 (18.0-35.9)	95.0 (61.4-129)	259 (129-331)	744
	03-04	4.76 (3.71-6.11)	4.26 (3.13-5.97)	22.8 (14.3-39.2)	86.4 (49.0-149)	185 (101-261)	729
	05-06	6.30 (4.89-8.13)	5.69 (3.44-8.40)	28.0 (22.5-37.1)	89.0 (58.5-138)	258 (103-686)	693
	07-08	3.64 (2.28-5.83)	2.99 (1.91-5.69)	18.3 (7.73-24.0)	75.3 (21.4-200)	199 (69.4-664)	375
	09-10	6.02 (4.74-7.65)	5.71 (3.30-7.53)	23.6 (16.0-36.8)	109 (59.2-189)	287 (132-558)	447
20 years and older	99-00	3.82 (2.84-5.13)	3.90 (2.69-5.73)	20.2 (12.9-29.2)	96.5 (61.8-133)	172 (140-252)	1317
	01-02	3.46 (2.95-4.04)	2.74 (2.03-3.64)	16.8 (13.7-20.3)	78.9 (58.2-124)	281 (143-467)	1654
	03-04	4.35 (3.96-4.78)	3.75 (3.23-4.35)	18.6 (15.7-22.6)	95.2 (76.5-131)	228 (192-284)	1511
	05-06	4.10 (3.51-4.79)	3.35 (2.57-4.30)	17.4 (14.0-20.6)	89.3 (64.5-140)	197 (160-332)	1484
	07-08	4.52 (3.82-5.36)	3.13 (2.55-3.92)	22.7 (16.1-32.4)	130 (89.1-183)	353 (189-641)	1689
	09-10	4.56 (3.83-5.42)	3.29 (2.42-4.07)	21.2 (16.2-26.8)	139 (95.3-212)	437 (246-634)	1974
Gender Males	99-00	3.95 (2.79-5.58)	4.50 (2.88-6.50)	24.5 (13.8-40.5)	96.5 (62.4-122)	210 (125-265)	1087
	01-02	3.10 (2.48-3.86)	2.87 (2.00-3.96)	15.0 (10.4-19.7)	60.7 (41.5-90.2)	154 (96.4-301)	1375
	03-04	3.83 (3.10-4.73)	3.33 (2.41-4.35)	15.6 (13.9-18.9)	76.2 (51.1-99.5)	193 (124-255)	1240
	05-06	3.97 (3.33-4.72)	3.49 (2.73-4.33)	17.7 (14.1-21.4)	68.3 (55.8-85.8)	165 (140-216)	1252
	07-08	3.79 (3.10-4.63)	2.79 (2.33-3.49)	18.2 (12.4-25.7)	86.7 (59.2-153)	264 (139-432)	1198
	09-10	4.02 (3.10-5.19)	3.19 (2.13-4.58)	17.3 (12.3-21.7)	86.2 (59.8-137)	317 (140-485)	1376
Females	99-00	4.10 (3.00-5.61)	4.17 (2.91-6.35)	20.4 (14.4-27.2)	86.0 (49.1-145)	155 (100-205)	1184
	01-02	4.68 (3.87-5.68)	3.74 (2.77-4.88)	26.8 (18.7-34.0)	111 (70.3-205)	399 (175-739)	1419
	03-04	5.45 (4.71-6.30)	4.82 (4.09-5.92)	24.3 (19.6-28.9)	106 (78.5-163)	255 (193-343)	1341
	05-06	5.27 (4.56-6.09)	4.00 (3.07-5.49)	24.1 (19.8-31.1)	140 (96.8-166)	325 (197-613)	1276
	07-08	5.72 (4.75-6.88)	4.23 (3.33-5.71)	29.0 (20.4-43.2)	164 (105-213)	394 (212-743)	1226
	09-10	6.35 (5.34-7.57)	4.42 (3.46-5.79)	34.1 (25.4-43.5)	199 (139-248)	504 (350-761)	1415

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary O-Desmethyldangolensin (creatinine corrected) (1999 – 2010)‡

Metabolite of Daidzein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	99-00	2.19 (1.49-3.24)	1.88 (1.15-3.10)	16.6 (11.3-25.8)	71.2 (52.3-113)	136 (90.5-251)	721
	01-02	2.30 (1.48-3.57)	1.45 (.769-3.37)	11.8 (4.91-23.6)	46.7 (31.4-87.8)	108 (54.7-218)	679
	03-04	2.30 (1.68-3.15)	1.65 (.845-3.06)	13.2 (6.63-21.2)	51.6 (36.9-75.4)	125 (84.1-165)	652
	05-06	2.75 (1.92-3.93)	1.69 (1.04-2.99)	12.8 (7.27-24.9)	53.0 (33.3-93.2)	135 (72.6-204)	634
	07-08	3.10 (2.26-4.27)	2.22 (1.42-3.32)	16.0 (8.84-23.8)	82.0 (45.8-145)	215 (98.9-467)	520
	09-10	3.62 (2.92-4.50)	2.71 (1.82-4.92)	13.5 (10.8-19.6)	76.5 (54.2-128)	226 (113-461)	604
Non-Hispanic blacks	99-00	3.65 (2.90-4.60)	5.22 (3.59-6.75)	23.8 (17.6-32.1)	67.1 (52.1-79.7)	116 (81.9-239)	538
	01-02	3.75 (2.76-5.10)	3.57 (2.14-5.48)	22.8 (14.5-30.4)	78.5 (46.5-175)	218 (98.5-339)	706
	03-04	3.89 (3.03-4.99)	3.12 (1.96-4.96)	16.9 (11.3-26.7)	80.0 (58.6-104)	159 (120-255)	698
	05-06	4.09 (3.13-5.34)	4.22 (2.49-5.71)	20.1 (13.5-24.5)	69.9 (44.8-151)	225 (90.2-369)	662
	07-08	5.13 (3.47-7.57)	4.22 (2.84-7.71)	27.0 (15.6-44.5)	133 (81.9-182)	308 (164-485)	562
	09-10	4.06 (3.11-5.28)	3.61 (2.41-5.07)	22.4 (12.9-30.2)	95.1 (59.2-142)	208 (133-418)	533
Non-Hispanic whites	99-00	4.42 (3.12-6.27)	4.68 (3.05-7.23)	22.3 (15.3-37.9)	102 (57.6-148)	177 (140-215)	826
	01-02	4.08 (3.41-4.89)	3.51 (2.45-4.57)	21.2 (16.3-27.4)	96.4 (69.8-126)	300 (153-464)	1222
	03-04	5.18 (4.70-5.70)	4.58 (3.89-5.39)	21.6 (17.4-27.7)	103 (77.7-149)	225 (185-271)	1070
	05-06	4.96 (4.33-5.69)	3.97 (3.26-4.67)	21.5 (17.3-26.2)	101 (74.5-142)	227 (183-332)	1039
	07-08	4.86 (4.00-5.91)	3.85 (3.06-4.57)	22.2 (15.1-32.4)	124 (84.2-180)	355 (175-728)	993
	09-10	5.55 (4.77-6.47)	3.88 (3.19-4.87)	23.8 (19.2-32.5)	146 (97.6-248)	461 (330-739)	1186

‡Not measured after Survey years 2009-2010

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phytoestrogens_BiomonitoringSummary.html

Urinary 2-Hydroxyfluorene (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	304 (262-354)	280 (242-319)	679 (561-815)	1850 (1430-2190)	2670 (2230-3130)	2521
	05-06	316 (297-338)	272 (243-296)	661 (605-743)	2060 (1600-2420)	3150 (2670-3730)	2431
	07-08	303 (271-338)	259 (231-293)	618 (489-817)	1630 (1340-2020)	2510 (2100-2890)	2581
	09-10	240 (222-259)	211 (195-227)	480 (449-530)	1190 (1040-1410)	2200 (1880-2490)	2747
Age group 6-11 years	03-04	209 (183-239)	228 (189-259)	341 (295-411)	576 (423-728)	763 (613-827)	338
	05-06	201 (184-221)	195 (170-223)	352 (306-402)	497 (436-618)	709 (536-833)	343
	07-08	233 (205-264)	239 (194-280)	400 (326-454)	620 (484-714)	851 (695-1000)	382
	09-10	172 (153-192)	170 (160-181)	278 (251-320)	458 (356-622)	743 (486-966)	416
12-19 years	03-04	281 (245-321)	292 (259-323)	502 (445-601)	1000 (753-1320)	1480 (1320-1930)	707
	05-06	283 (258-311)	272 (247-300)	482 (425-540)	1080 (843-1250)	1750 (1100-2820)	670
	07-08	287 (243-339)	255 (217-293)	541 (434-631)	963 (774-1350)	1510 (1050-2120)	395
	09-10	231 (196-273)	203 (179-235)	418 (339-535)	784 (645-1230)	1880 (765-2410)	420
20 years and older	03-04	323 (272-383)	290 (247-334)	832 (653-1020)	2090 (1680-2460)	2920 (2410-3650)	1476
	05-06	340 (311-371)	284 (252-317)	813 (705-917)	2410 (1880-2820)	3460 (2820-4160)	1418
	07-08	314 (276-357)	267 (231-306)	699 (518-1020)	1790 (1470-2220)	2700 (2190-3270)	1804
	09-10	250 (230-272)	220 (201-238)	537 (476-599)	1370 (1130-1650)	2330 (1990-2700)	1911
Gender Males	03-04	385 (333-446)	338 (300-415)	900 (739-1150)	2120 (1770-2450)	2930 (2490-3390)	1213
	05-06	376 (345-410)	332 (302-364)	823 (658-1030)	2160 (1660-2570)	3120 (2570-3560)	1213
	07-08	366 (334-402)	306 (280-348)	756 (613-983)	1740 (1430-2130)	2650 (2130-3270)	1280
	09-10	275 (250-304)	234 (215-259)	536 (464-635)	1390 (1130-1710)	2350 (1990-2550)	1399
Females	03-04	243 (204-290)	226 (184-269)	490 (405-617)	1400 (907-1930)	2310 (1740-3070)	1308
	05-06	268 (234-307)	227 (199-270)	528 (445-638)	1910 (1020-2830)	3180 (2180-4590)	1218
	07-08	252 (219-289)	216 (192-236)	505 (387-629)	1470 (1050-1960)	2330 (1770-2840)	1301
	09-10	210 (189-232)	189 (170-213)	442 (389-506)	1050 (849-1270)	2090 (1370-2520)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyfluorene (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	03-04	248 (215-286)	235 (203-293)	502 (412-580)	1100 (771-1330)	1640 (1250-2240)	629
	05-06	233 (200-271)	216 (180-247)	413 (334-488)	901 (704-1080)	1360 (1060-1950)	615
	07-08	248 (226-273)	240 (215-261)	418 (355-496)	801 (643-979)	1300 (933-1680)	523
	09-10	214 (181-254)	197 (156-245)	385 (286-483)	860 (635-1130)	1800 (1070-2350)	566
Non-Hispanic blacks	03-04	432 (360-519)	380 (314-462)	856 (695-1330)	2200 (1830-2650)	2970 (2310-4680)	666
	05-06	404 (346-471)	330 (307-377)	805 (626-1090)	2190 (1610-2930)	3160 (2530-4330)	657
	07-08	387 (333-450)	325 (281-403)	879 (724-1040)	1940 (1500-2550)	3170 (2290-5120)	590
	09-10	371 (317-433)	354 (314-401)	808 (620-1080)	1710 (1330-2280)	2580 (2090-3390)	517
Non-Hispanic whites	03-04	306 (254-369)	274 (230-332)	708 (555-878)	1950 (1540-2390)	2920 (2400-3500)	1035
	05-06	319 (290-350)	270 (237-315)	705 (626-829)	2180 (1700-2540)	3390 (2670-4250)	972
	07-08	307 (261-362)	257 (221-308)	629 (452-995)	1720 (1260-2190)	2580 (2070-3020)	1070
	09-10	228 (206-252)	199 (182-220)	457 (409-506)	1150 (921-1440)	2120 (1650-2550)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyfluorene (2011 – 2014)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	240 (219-263)	215 (199-231)	498 (444-576)	1380 (1110-1570)	2340 (1920-2620)	2492
	13-14	181 (165-197)	158 (146-174)	375 (319-431)	1020 (810-1260)	1650 (1430-1960)	2650
Age group							
6-11 years	11-12	161 (146-177)	176 (166-194)	301 (259-332)	485 (390-595)	615 (522-736)	397
	13-14	119 (108-132)	117 (105-131)	217 (191-261)	371 (302-458)	549 (445-682)	399
12-19 years	11-12	233 (198-274)	224 (180-275)	476 (386-567)	888 (679-1100)	1370 (1030-1950)	389
	13-14	172 (139-212)	175 (128-227)	335 (285-424)	696 (531-860)	1140 (708-1430)	449
20 years and older	11-12	252 (227-279)	217 (201-242)	574 (474-637)	1530 (1320-1830)	2420 (2180-2920)	1706
	13-14	190 (172-209)	161 (145-182)	410 (338-491)	1180 (951-1430)	1820 (1570-2140)	1802
Gender							
Males	11-12	280 (245-320)	244 (210-286)	584 (457-689)	1460 (1180-1830)	2390 (2050-3100)	1258
	13-14	201 (184-220)	180 (160-195)	400 (338-462)	1060 (810-1280)	1670 (1270-2150)	1315
Females	11-12	207 (182-236)	180 (157-209)	425 (360-525)	1210 (810-1580)	2260 (1620-2420)	1234
	13-14	162 (146-180)	138 (121-158)	333 (283-423)	984 (716-1240)	1610 (1290-2160)	1335
Race/ethnicity							
Mexican Americans	11-12	238 (184-307)	220 (180-252)	475 (306-747)	1030 (584-1780)	1510 (829-2920)	317
	13-14	154 (147-161)	146 (132-167)	298 (250-320)	500 (377-756)	857 (505-1100)	450
Non-Hispanic blacks	11-12	342 (306-381)	321 (304-349)	641 (549-734)	1480 (1150-1890)	2390 (1970-3040)	664
	13-14	303 (264-347)	248 (220-294)	676 (569-820)	1630 (1210-2150)	2500 (1790-2930)	578
Non-Hispanic whites	11-12	227 (210-246)	199 (173-221)	480 (386-580)	1410 (1110-1620)	2350 (1790-2920)	814
	13-14	176 (155-198)	153 (135-174)	380 (306-480)	1060 (804-1290)	1770 (1440-2070)	979
All Hispanics	11-12	251 (210-301)	228 (204-260)	514 (421-646)	1050 (785-1510)	1810 (1260-2410)	573
	13-14	162 (148-177)	153 (135-178)	298 (259-333)	572 (412-853)	991 (694-1240)	698
Asians	11-12	154 (126-190)	137 (111-175)	326 (217-408)	563 (467-903)	1100 (691-1490)	352
	13-14	103 (82.0-130)	100 (84.0-120)	172 (137-244)	322 (229-741)	741 (322-1150)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 10.0 and 8.0, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	286 (256-320)	221 (200-249)	495 (429-629)	1510 (1150-1800)	2070 (1850-2390)	2521
	05-06	308 (288-330)	227 (209-245)	567 (509-658)	1730 (1540-1850)	2450 (2020-2930)	2431
	07-08	304 (272-339)	234 (211-260)	526 (403-711)	1500 (1140-1780)	2150 (1850-2500)	2581
	09-10	250 (237-264)	193 (179-208)	392 (353-434)	1170 (1050-1290)	1840 (1620-1990)	2747
Age group							
6-11 years	03-04	221 (199-246)	217 (188-238)	305 (270-356)	462 (370-535)	695 (465-807)	338
	05-06	224 (207-243)	219 (197-254)	320 (288-365)	451 (384-523)	527 (450-720)	343
	07-08	287 (255-324)	262 (240-292)	407 (355-503)	721 (555-849)	864 (757-956)	382
	09-10	224 (207-242)	208 (186-232)	324 (296-336)	448 (361-677)	710 (448-1290)	416
12-19 years	03-04	213 (189-240)	189 (172-211)	310 (275-377)	649 (512-778)	937 (762-1320)	707
	05-06	214 (201-227)	189 (178-197)	286 (266-320)	607 (516-769)	1190 (803-1430)	670
	07-08	223 (200-249)	204 (176-236)	351 (270-419)	592 (504-683)	900 (683-1080)	395
	09-10	186 (168-206)	154 (139-171)	251 (214-320)	569 (366-831)	858 (605-1190)	420
20 years and older	03-04	310 (274-350)	233 (203-269)	659 (494-835)	1730 (1420-1940)	2310 (1930-2590)	1476
	05-06	339 (313-367)	241 (216-262)	754 (629-891)	1870 (1750-2110)	2830 (2250-3200)	1418
	07-08	321 (282-365)	234 (210-269)	633 (438-873)	1650 (1360-2060)	2390 (2090-2690)	1804
	09-10	265 (249-282)	199 (185-215)	463 (400-511)	1360 (1190-1490)	1970 (1750-2230)	1911
Gender							
Males	03-04	302 (271-337)	242 (218-272)	635 (494-758)	1510 (1200-1700)	1940 (1700-2310)	1213
	05-06	302 (278-328)	233 (212-259)	610 (510-744)	1480 (1240-1680)	1920 (1680-2390)	1213
	07-08	308 (283-336)	239 (218-261)	615 (464-764)	1480 (1200-1640)	2120 (1780-2390)	1280
	09-10	247 (229-266)	188 (171-214)	417 (350-491)	1190 (955-1420)	1770 (1400-2220)	1399
Females	03-04	271 (235-314)	208 (183-244)	415 (352-521)	1530 (991-1890)	2220 (1730-2590)	1308
	05-06	314 (284-347)	217 (198-247)	526 (437-622)	1900 (1680-2240)	2930 (2310-3280)	1218
	07-08	300 (257-350)	225 (201-265)	461 (347-683)	1510 (929-2100)	2250 (1630-2770)	1301
	09-10	253 (232-276)	197 (178-217)	369 (320-433)	1130 (870-1380)	1900 (1490-2430)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	224 (197-255)	198 (178-227)	370 (306-432)	745 (562-1030)	1200 (745-1730)	629
	05-06	210 (190-232)	179 (155-205)	294 (250-368)	624 (439-834)	1000 (720-1190)	615
	07-08	244 (216-275)	214 (187-238)	364 (301-438)	718 (582-824)	958 (775-1480)	523
	09-10	213 (181-250)	171 (150-207)	316 (244-462)	667 (534-852)	1180 (846-1470)	566
Non-Hispanic blacks	03-04	306 (259-360)	245 (207-295)	609 (430-756)	1390 (939-1870)	1880 (1510-2430)	666
	05-06	284 (250-322)	222 (202-245)	502 (350-714)	1230 (941-1760)	1880 (1510-2440)	657
	07-08	299 (254-351)	237 (198-287)	602 (468-768)	1370 (1050-1910)	2220 (1570-2990)	590
	09-10	269 (241-300)	214 (193-244)	501 (383-653)	1220 (1010-1410)	1620 (1280-1950)	517
Non-Hispanic whites	03-04	303 (265-346)	225 (198-259)	561 (450-765)	1620 (1420-1940)	2310 (1940-2540)	1035
	05-06	335 (307-366)	242 (216-270)	687 (561-806)	1840 (1650-2060)	2800 (2070-3260)	972
	07-08	319 (274-372)	238 (205-290)	579 (393-841)	1620 (1180-2090)	2340 (1940-2640)	1070
	09-10	256 (242-271)	196 (178-214)	381 (338-451)	1260 (1090-1490)	1940 (1690-2220)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyfluorene (creatinine corrected) (2011 – 2014)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	273 (255-292)	211 (196-228)	439 (374-495)	1340 (1120-1570)	2110 (1930-2250)	2490
	13-14	209 (194-226)	167 (155-182)	319 (283-359)	942 (768-1130)	1460 (1280-1650)	2649
Age group							
6-11 years	11-12	231 (213-251)	222 (201-243)	309 (268-371)	474 (379-567)	584 (515-702)	396
	13-14	179 (164-196)	175 (153-196)	242 (215-289)	354 (316-373)	456 (366-659)	399
12-19 years	11-12	225 (205-248)	205 (180-242)	307 (266-368)	733 (454-877)	966 (733-1150)	389
	13-14	156 (140-173)	136 (120-152)	208 (191-245)	416 (313-661)	767 (502-1270)	449
20 years and older	11-12	286 (266-309)	211 (195-229)	484 (420-615)	1630 (1320-1820)	2230 (2000-2630)	1705
	13-14	222 (205-241)	173 (157-188)	355 (315-417)	1070 (845-1270)	1610 (1350-1810)	1801
Gender							
Males	11-12	262 (233-296)	201 (183-228)	439 (342-576)	1320 (1060-1630)	2040 (1710-2200)	1257
	13-14	202 (186-218)	163 (152-182)	323 (292-364)	806 (626-1100)	1300 (1000-1680)	1314
Females	11-12	284 (255-316)	218 (199-242)	439 (338-527)	1370 (920-1820)	2220 (1820-2570)	1233
	13-14	217 (197-238)	172 (155-185)	316 (261-386)	1070 (845-1260)	1550 (1320-1810)	1335
Race/ethnicity							
Mexican Americans	11-12	267 (222-322)	221 (183-264)	440 (283-647)	1020 (515-1500)	1350 (937-2460)	317
	13-14	176 (163-191)	149 (137-167)	261 (220-321)	468 (377-710)	832 (474-1230)	450
Non-Hispanic blacks	11-12	266 (241-294)	228 (203-244)	461 (339-619)	971 (841-1090)	1460 (1090-1930)	664
	13-14	231 (206-260)	178 (155-225)	451 (383-576)	1110 (892-1160)	1460 (1190-1520)	578
Non-Hispanic whites	11-12	276 (260-293)	208 (189-228)	445 (374-501)	1600 (1310-1820)	2220 (1950-2630)	812
	13-14	217 (197-240)	172 (154-188)	325 (278-394)	1070 (785-1320)	1640 (1340-1860)	978
All Hispanics	11-12	281 (248-319)	225 (199-255)	445 (337-553)	1110 (642-1460)	1550 (1170-2180)	573
	13-14	182 (165-200)	159 (141-177)	265 (220-323)	512 (424-724)	943 (752-1220)	698
Asians	11-12	207 (174-246)	185 (156-233)	299 (262-351)	532 (401-828)	996 (643-1420)	352
	13-14	162 (136-192)	150 (120-178)	238 (189-336)	435 (290-755)	755 (414-847)	291

Biomonitoring Summary

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Urinary 3-Hydroxyfluorene (2001 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	134 (115-155)	111 (96.0-126)	253 (207-349)	959 (666-1300)	1620 (1390-1900)	2745
	03-04	126 (108-148)	103 (90.4-118)	302 (231-404)	1090 (934-1270)	1740 (1400-2070)	2502
	05-06	124 (115-134)	99.1 (88.5-110)	304 (268-365)	1060 (830-1210)	1780 (1500-1910)	2398
	07-08	116 (103-132)	92.9 (85.7-100)	258 (203-341)	821 (681-1050)	1380 (1170-1630)	2581
	09-10	95.0 (87.9-103)	78.0 (71.0-84.0)	192 (174-208)	623 (501-741)	1050 (941-1270)	2744
Age group 6-11 years	01-02	106 (94.8-119)	106 (91.0-124)	174 (145-200)	287 (235-358)	385 (306-455)	387
	03-04	89.2 (77.3-103)	92.3 (79.7-103)	151 (113-172)	238 (184-331)	343 (241-423)	336
	05-06	81.7 (73.6-90.7)	80.6 (68.3-98.9)	140 (122-174)	235 (189-272)	287 (242-345)	336
	07-08	98.0 (85.8-112)	94.2 (84.3-106)	178 (149-198)	302 (239-332)	458 (247-752)	382
	09-10	73.8 (66.7-81.7)	74.0 (65.0-82.0)	113 (103-129)	194 (164-249)	308 (202-453)	416
12-19 years	01-02	129 (103-161)	113 (97.0-137)	222 (177-266)	542 (325-1070)	1210 (680-2130)	733
	03-04	116 (100-134)	114 (94.7-133)	214 (181-269)	476 (317-748)	924 (609-1410)	701
	05-06	119 (107-133)	112 (94.4-126)	212 (181-229)	588 (436-659)	986 (609-1800)	661
	07-08	114 (95.5-136)	93.7 (77.4-114)	218 (168-258)	494 (341-740)	830 (725-1020)	400
	09-10	96.0 (79.7-116)	85.0 (65.0-104)	178 (139-215)	394 (257-643)	798 (550-1030)	420
20 years and older	01-02	138 (119-161)	111 (94.0-129)	311 (228-429)	1130 (823-1400)	1850 (1470-2080)	1625
	03-04	134 (112-160)	105 (86.5-125)	408 (300-537)	1240 (1050-1480)	1910 (1620-2290)	1465
	05-06	131 (118-145)	101 (86.2-117)	394 (308-448)	1220 (968-1510)	1900 (1620-2050)	1401
	07-08	119 (103-138)	91.4 (83.5-100)	302 (205-449)	992 (745-1200)	1550 (1230-1820)	1799
	09-10	97.5 (90.1-106)	79.0 (71.0-84.0)	217 (185-253)	711 (542-820)	1230 (978-1490)	1908
Gender Males	01-02	163 (137-194)	134 (115-155)	352 (242-481)	1110 (721-1500)	1850 (1390-2190)	1346
	03-04	165 (140-194)	133 (108-162)	458 (313-681)	1270 (1030-1530)	1920 (1580-2120)	1205
	05-06	155 (138-174)	127 (118-136)	420 (304-510)	1130 (887-1330)	1810 (1440-2050)	1196
	07-08	146 (131-162)	115 (103-132)	330 (262-450)	944 (748-1190)	1530 (1160-1940)	1284
	09-10	111 (99.3-124)	87.0 (75.0-102)	214 (183-272)	718 (549-806)	1190 (982-1390)	1397
Females	01-02	111 (95.0-130)	94.0 (83.0-108)	204 (169-250)	796 (498-1040)	1390 (1250-1670)	1399
	03-04	98.2 (81.2-119)	80.5 (66.7-101)	195 (163-272)	842 (530-1200)	1590 (1180-1800)	1297
	05-06	99.9 (87.0-115)	78.2 (68.3-88.3)	225 (176-278)	961 (558-1390)	1720 (1300-2020)	1202
	07-08	93.9 (81.2-109)	77.2 (70.4-83.8)	192 (134-276)	688 (457-1090)	1280 (1030-1590)	1297
	09-10	82.0 (74.7-90.0)	69.0 (62.0-77.0)	174 (155-194)	514 (388-677)	958 (757-1370)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 2.0, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyfluorene (2001 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	108 (87.1-134)	99.0 (81.0-119)	190 (144-255)	476 (302-641)	718 (476-1140)	662
	03-04	93.4 (79.6-110)	83.4 (67.0-96.9)	190 (150-252)	520 (388-726)	1030 (688-1320)	622
	05-06	82.5 (71.0-95.8)	71.8 (60.2-83.9)	143 (116-173)	435 (265-716)	763 (565-1020)	596
	07-08	90.4 (79.6-103)	81.2 (74.5-92.4)	160 (136-192)	363 (259-513)	674 (454-1180)	529
	09-10	77.8 (67.1-90.1)	65.0 (51.0-80.0)	149 (108-207)	390 (296-470)	750 (464-1020)	564
Non-Hispanic blacks	01-02	203 (169-244)	162 (135-188)	449 (308-830)	1420 (1130-1780)	2350 (1520-3000)	692
	03-04	194 (156-242)	156 (124-184)	466 (297-869)	1480 (1170-1810)	2180 (1620-2830)	665
	05-06	170 (143-202)	134 (121-149)	345 (246-558)	1300 (929-1760)	1880 (1550-2370)	652
	07-08	164 (142-190)	133 (112-157)	393 (303-494)	1290 (963-1420)	1770 (1330-2660)	587
	09-10	163 (134-198)	144 (120-167)	389 (255-670)	1100 (804-1360)	1670 (1230-2010)	517
Non-Hispanic whites	01-02	130 (108-157)	108 (93.0-127)	246 (202-352)	948 (621-1320)	1620 (1320-1990)	1207
	03-04	128 (106-155)	104 (86.2-124)	311 (233-452)	1210 (1010-1410)	1870 (1430-2290)	1025
	05-06	123 (111-137)	96.8 (85.4-112)	343 (275-420)	1060 (760-1260)	1870 (1390-2050)	966
	07-08	118 (98.0-141)	91.6 (81.6-103)	274 (195-403)	857 (646-1190)	1370 (1050-1740)	1066
	09-10	89.5 (80.7-99.4)	73.0 (64.0-84.0)	174 (156-194)	545 (403-732)	973 (806-1280)	1202

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 2.0, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyfluorene (2011 – 2014)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	93.6 (85.2-103)	77.0 (70.0-85.0)	195 (166-226)	688 (505-851)	1240 (946-1690)	2488
	13-14	79.9 (72.5-88.0)	69.0 (61.0-74.0)	166 (143-207)	577 (479-675)	1010 (782-1300)	2650
Age group							
6-11 years	11-12	69.9 (63.1-77.3)	77.0 (66.0-91.0)	132 (118-145)	203 (178-229)	244 (224-270)	397
	13-14	57.7 (51.9-64.3)	58.0 (51.0-63.0)	98.0 (85.0-115)	177 (149-227)	266 (215-394)	399
12-19 years	11-12	91.7 (77.7-108)	86.0 (73.0-109)	182 (153-208)	398 (269-681)	801 (473-1050)	389
	13-14	79.9 (65.4-97.7)	76.0 (59.0-99.0)	154 (123-183)	337 (220-564)	611 (337-1000)	449
20 years and older	11-12	97.0 (87.0-108)	76.0 (67.0-85.0)	221 (172-271)	809 (614-968)	1410 (1090-1810)	1702
	13-14	82.6 (74.0-92.3)	69.0 (60.0-75.0)	186 (149-242)	660 (532-782)	1210 (941-1440)	1802
Gender							
Males	11-12	112 (95.1-132)	92.0 (78.0-108)	225 (167-302)	857 (517-1030)	1630 (969-1990)	1257
	13-14	93.6 (84.4-104)	79.0 (72.0-87.0)	187 (157-242)	613 (480-774)	1070 (767-1450)	1315
Females	11-12	78.8 (68.1-91.1)	66.0 (58.0-76.0)	166 (135-205)	556 (399-715)	1030 (804-1340)	1231
	13-14	68.5 (61.6-76.3)	56.0 (50.0-65.0)	142 (116-185)	532 (393-666)	999 (680-1320)	1335
Race/ethnicity							
Mexican Americans	11-12	86.4 (64.9-115)	75.0 (58.0-95.0)	176 (114-289)	426 (229-949)	835 (311-1640)	315
	13-14	62.4 (57.6-67.5)	59.0 (52.0-69.0)	116 (98.0-132)	213 (193-283)	422 (247-544)	450
Non-Hispanic blacks	11-12	143 (128-159)	122 (109-137)	281 (220-335)	879 (639-1140)	1600 (1190-1980)	663
	13-14	155 (133-181)	122 (99.0-152)	369 (283-522)	1250 (716-1820)	1940 (1390-2430)	578
Non-Hispanic whites	11-12	88.9 (82.3-96.0)	70.0 (63.0-78.0)	183 (155-223)	700 (515-837)	1220 (857-1930)	813
	13-14	77.2 (67.4-88.4)	63.0 (57.0-73.0)	170 (132-226)	583 (464-760)	1010 (767-1320)	979
All Hispanics	11-12	92.6 (75.9-113)	77.0 (68.0-97.0)	199 (148-258)	473 (300-835)	946 (543-1330)	571
	13-14	66.6 (59.4-74.8)	62.0 (53.0-75.0)	118 (102-137)	283 (182-497)	561 (293-804)	698
Asians	11-12	57.8 (47.9-69.8)	49.0 (41.0-64.0)	126 (96.0-151)	230 (184-373)	555 (295-781)	352
	13-14	43.0 (34.1-54.1)	42.0 (33.0-50.0)	74.0 (56.0-103)	156 (102-317)	317 (156-618)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 10.0 and 8.0, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyfluorene (creatinine corrected) (2001 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	125 (108-144)	94.4 (83.3-106)	220 (174-303)	754 (622-873)	1060 (909-1290)	2745
	03-04	119 (106-134)	86.6 (76.8-97.3)	256 (201-337)	856 (668-1060)	1330 (1130-1590)	2502
	05-06	121 (111-131)	84.5 (77.5-93.4)	245 (203-297)	930 (806-1020)	1280 (1150-1400)	2398
	07-08	117 (104-132)	84.6 (76.8-98.5)	226 (177-310)	789 (601-1000)	1230 (1040-1410)	2581
	09-10	99.2 (93.0-106)	76.0 (69.7-84.0)	157 (144-180)	568 (521-662)	988 (914-1070)	2744
Age group 6-11 years	01-02	119 (103-137)	110 (96.7-121)	153 (135-197)	265 (206-377)	382 (254-631)	387
	03-04	94.6 (84.3-106)	92.4 (83.1-98.5)	130 (115-154)	202 (168-282)	311 (197-435)	336
	05-06	90.7 (82.6-99.6)	90.3 (80.1-99.7)	130 (119-142)	210 (167-242)	290 (237-353)	336
	07-08	120 (105-138)	108 (92.3-127)	186 (150-215)	330 (231-401)	419 (304-918)	382
	09-10	96.3 (89.9-103)	89.5 (82.4-96.5)	130 (120-145)	228 (173-262)	304 (235-430)	416
12-19 years	01-02	99.3 (81.6-121)	81.9 (74.2-92.6)	144 (109-197)	390 (214-700)	711 (372-1380)	733
	03-04	88.1 (78.0-99.6)	79.0 (72.5-83.2)	137 (114-170)	319 (225-440)	586 (356-880)	701
	05-06	90.1 (84.3-96.3)	73.8 (70.0-81.7)	133 (112-153)	381 (323-426)	618 (437-819)	661
	07-08	88.5 (78.9-99.2)	74.8 (65.2-84.6)	141 (118-185)	317 (242-449)	515 (338-656)	400
	09-10	77.2 (68.4-87.1)	64.1 (57.0-72.7)	103 (87.0-138)	257 (211-368)	475 (355-600)	420
20 years and older	01-02	131 (113-151)	94.4 (81.0-108)	279 (195-367)	862 (727-923)	1210 (1010-1350)	1625
	03-04	128 (113-146)	88.2 (76.8-104)	364 (242-484)	1020 (828-1240)	1500 (1290-1710)	1465
	05-06	131 (119-144)	85.9 (77.1-98.5)	334 (251-476)	1020 (931-1180)	1380 (1220-1550)	1401
	07-08	122 (106-142)	83.9 (76.0-99.9)	276 (186-389)	926 (710-1110)	1320 (1150-1500)	1799
	09-10	103 (96.3-111)	76.2 (69.6-85.9)	185 (157-213)	710 (600-779)	1070 (966-1120)	1908
Gender Males	01-02	132 (111-156)	100 (88.5-117)	260 (194-361)	745 (560-914)	1130 (862-1380)	1346
	03-04	129 (114-147)	95.8 (82.5-111)	338 (226-456)	833 (672-1010)	1220 (980-1510)	1205
	05-06	125 (112-139)	92.4 (84.3-103)	272 (215-404)	784 (660-936)	1100 (874-1310)	1196
	07-08	123 (111-136)	92.3 (80.8-105)	282 (227-354)	791 (675-969)	1110 (989-1330)	1284
	09-10	99.4 (90.3-110)	74.3 (65.3-85.9)	167 (149-199)	616 (494-739)	948 (736-1140)	1397
Females	01-02	119 (104-136)	88.9 (78.6-103)	179 (156-227)	777 (604-888)	1030 (923-1270)	1399
	03-04	110 (93.4-129)	81.7 (69.5-91.5)	183 (132-285)	920 (488-1270)	1460 (1130-1750)	1297
	05-06	117 (105-130)	77.6 (71.9-90.2)	203 (160-290)	1040 (836-1240)	1400 (1220-1780)	1202
	07-08	112 (95.7-131)	82.1 (72.7-96.8)	180 (132-265)	789 (450-1140)	1240 (1050-1500)	1297
	09-10	98.9 (90.8-108)	76.4 (69.7-86.8)	149 (134-179)	529 (441-728)	1040 (801-1200)	1347

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyfluorene (creatinine corrected) (2001 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	101 (84.2-121)	84.0 (74.8-97.2)	159 (124-214)	364 (227-598)	604 (357-1230)	662
	03-04	84.8 (73.1-98.4)	68.8 (60.0-80.2)	170 (119-213)	353 (319-435)	668 (353-1050)	622
	05-06	74.0 (66.0-83.1)	59.9 (52.5-69.7)	112 (88.0-136)	282 (217-410)	585 (320-763)	596
	07-08	88.1 (75.3-103)	72.7 (62.2-84.1)	141 (107-184)	366 (232-536)	568 (397-722)	529
	09-10	77.3 (67.1-89.1)	61.6 (52.6-72.6)	126 (96.0-160)	344 (252-479)	609 (373-905)	564
Non-Hispanic blacks	01-02	143 (118-173)	110 (90.7-133)	316 (186-525)	849 (622-1230)	1240 (882-1430)	692
	03-04	138 (114-167)	106 (91.7-117)	316 (203-475)	948 (554-1310)	1310 (963-1710)	665
	05-06	119 (103-138)	87.4 (78.4-97.0)	214 (154-388)	711 (523-1000)	1100 (838-1380)	652
	07-08	128 (109-150)	94.1 (82.2-110)	309 (204-433)	829 (715-981)	1310 (981-1640)	587
	09-10	118 (102-137)	87.1 (73.8-104)	260 (173-397)	729 (559-860)	958 (784-1190)	517
Non-Hispanic whites	01-02	128 (108-152)	94.7 (83.4-109)	223 (171-323)	816 (642-914)	1150 (910-1410)	1207
	03-04	127 (110-145)	89.8 (79.5-103)	305 (211-403)	975 (768-1170)	1460 (1270-1700)	1025
	05-06	130 (117-144)	91.1 (81.0-104)	290 (229-426)	973 (836-1180)	1380 (1130-1570)	966
	07-08	122 (103-145)	89.3 (76.2-108)	244 (166-377)	895 (579-1110)	1250 (1080-1470)	1066
	09-10	101 (93.2-109)	76.6 (68.9-88.4)	154 (140-184)	627 (516-739)	1070 (918-1140)	1202

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyfluorene (creatinine corrected) (2011 – 2014)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	107 (99.8-114)	80.6 (76.7-83.3)	185 (155-225)	753 (588-826)	1170 (1040-1330)	2486
	13-14	92.6 (85.1-101)	69.9 (65.0-76.5)	155 (131-184)	563 (452-680)	933 (881-1080)	2649
Age group							
6-11 years	11-12	100 (90.6-111)	93.3 (86.2-106)	138 (120-168)	210 (176-256)	281 (220-349)	396
	13-14	86.6 (77.8-96.5)	84.7 (69.7-98.8)	120 (105-149)	182 (162-218)	277 (193-327)	399
12-19 years	11-12	88.6 (78.9-99.5)	79.4 (70.0-88.4)	122 (109-173)	273 (223-392)	519 (329-698)	389
	13-14	72.4 (65.6-80.0)	63.6 (49.4-72.1)	103 (91.7-121)	241 (173-426)	501 (266-778)	449
20 years and older	11-12	110 (102-119)	78.3 (73.1-83.1)	220 (177-262)	832 (754-1030)	1230 (1100-1530)	1701
	13-14	96.7 (87.9-106)	69.8 (64.0-77.3)	176 (143-236)	662 (531-825)	1060 (921-1140)	1801
Gender							
Males	11-12	105 (90.1-122)	78.7 (70.5-86.7)	195 (137-279)	754 (493-1010)	1200 (894-1470)	1256
	13-14	93.7 (85.2-103)	72.7 (65.0-81.0)	166 (134-204)	519 (385-691)	933 (676-1120)	1314
Females	11-12	108 (94.7-123)	81.8 (75.0-88.9)	181 (144-235)	702 (439-964)	1130 (960-1380)	1230
	13-14	91.5 (82.7-101)	68.6 (63.8-74.3)	140 (117-176)	602 (467-706)	937 (882-1140)	1335
Race/ethnicity							
Mexican Americans	11-12	96.7 (77.8-120)	78.0 (63.7-91.3)	149 (121-220)	535 (219-765)	765 (510-1110)	315
	13-14	71.5 (64.2-79.6)	59.6 (53.9-64.4)	112 (91.6-134)	252 (163-363)	439 (271-563)	450
Non-Hispanic blacks	11-12	111 (101-121)	86.8 (81.3-95.1)	217 (183-267)	610 (456-758)	932 (753-1100)	663
	13-14	119 (104-136)	87.9 (71.7-101)	262 (180-402)	837 (643-930)	1100 (942-1240)	578
Non-Hispanic whites	11-12	108 (102-114)	80.0 (75.0-85.4)	199 (163-230)	822 (644-1040)	1230 (1100-1560)	811
	13-14	95.5 (85.3-107)	71.4 (64.7-79.1)	162 (126-214)	611 (452-825)	1060 (891-1200)	978
All Hispanics	11-12	103 (89.2-120)	82.9 (73.1-94.6)	163 (130-219)	554 (301-749)	839 (610-1110)	571
	13-14	74.6 (66.6-83.5)	60.8 (55.4-71.1)	115 (97.6-133)	295 (188-395)	563 (358-871)	698
Asians	11-12	77.5 (65.6-91.5)	71.0 (60.6-77.8)	114 (93.8-143)	236 (178-363)	474 (317-694)	352
	13-14	67.4 (57.2-79.5)	57.1 (52.6-68.4)	109 (77.8-155)	211 (151-336)	345 (212-643)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	267 (234-305)	269 (233-313)	541 (463-620)	929 (839-1060)	1390 (1130-1600)	2504
	05-06	308 (289-328)	300 (271-325)	609 (563-652)	1270 (1090-1420)	1820 (1560-2110)	2422
	07-08	337 (310-367)	327 (295-367)	677 (582-769)	1300 (1060-1490)	1960 (1670-2420)	2608
	09-10	255 (239-272)	253 (229-273)	514 (464-557)	981 (911-1060)	1510 (1290-1700)	2747
Age group 6-11 years	03-04	209 (184-238)	216 (173-240)	331 (267-458)	594 (446-809)	853 (553-1500)	333
	05-06	184 (162-209)	190 (153-210)	324 (261-397)	657 (448-783)	823 (671-1220)	342
	07-08	242 (208-282)	229 (196-280)	449 (326-580)	791 (565-1040)	1090 (787-1610)	389
	09-10	164 (144-186)	150 (132-182)	291 (254-351)	518 (424-727)	809 (522-1220)	416
12-19 years	03-04	253 (216-297)	271 (215-324)	506 (413-560)	894 (773-988)	1210 (929-1510)	698
	05-06	266 (245-290)	278 (253-314)	528 (454-574)	842 (738-1020)	1290 (1070-1510)	668
	07-08	308 (255-371)	295 (241-374)	583 (459-736)	1050 (829-1290)	1400 (1080-1870)	401
	09-10	237 (203-278)	235 (186-303)	475 (398-544)	813 (663-954)	1100 (846-1580)	420
20 years and older	03-04	277 (240-320)	279 (237-335)	583 (476-656)	979 (842-1140)	1490 (1140-1770)	1473
	05-06	335 (309-363)	323 (292-349)	653 (593-729)	1360 (1180-1610)	1950 (1650-2530)	1412
	07-08	355 (323-390)	352 (311-384)	716 (629-835)	1410 (1170-1670)	2160 (1770-2780)	1818
	09-10	271 (251-291)	267 (245-296)	546 (496-596)	1060 (960-1130)	1590 (1340-1900)	1911
Gender Males	03-04	330 (291-374)	330 (285-372)	632 (583-709)	1090 (898-1370)	1720 (1360-2250)	1208
	05-06	355 (325-387)	334 (296-387)	693 (608-783)	1310 (1150-1620)	2000 (1670-2560)	1208
	07-08	401 (365-441)	394 (356-442)	778 (661-897)	1420 (1260-1580)	2120 (1770-2820)	1294
	09-10	286 (261-313)	283 (255-317)	555 (492-632)	985 (900-1060)	1580 (1320-1750)	1399
Females	03-04	218 (188-253)	226 (191-253)	439 (357-521)	833 (697-973)	1100 (955-1310)	1296
	05-06	269 (242-299)	257 (230-297)	503 (426-580)	1090 (845-1400)	1610 (1400-1920)	1214
	07-08	286 (260-313)	271 (246-299)	557 (474-671)	1110 (914-1400)	1830 (1400-2400)	1314
	09-10	228 (213-244)	223 (208-244)	464 (432-501)	964 (850-1080)	1470 (1240-1700)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	03-04	229 (200-261)	232 (197-274)	435 (362-492)	773 (561-1010)	1030 (849-1170)	614
	05-06	232 (204-264)	221 (186-262)	407 (361-435)	738 (596-840)	1030 (788-1470)	614
	07-08	267 (246-288)	259 (236-285)	476 (430-515)	859 (732-1100)	1470 (1070-1980)	532
	09-10	214 (187-246)	197 (158-245)	416 (331-495)	854 (723-1040)	1520 (1040-2060)	566
Non-Hispanic blacks	03-04	382 (310-471)	357 (287-478)	717 (549-843)	1260 (1050-1600)	1880 (1540-2330)	661
	05-06	416 (360-481)	406 (366-450)	716 (593-943)	1430 (1010-2250)	2310 (1590-3410)	655
	07-08	426 (376-482)	423 (356-477)	817 (693-978)	1490 (1200-1950)	2260 (1870-3040)	597
	09-10	377 (339-419)	363 (339-421)	745 (626-878)	1240 (1110-1460)	2120 (1430-2680)	517
Non-Hispanic whites	03-04	265 (225-312)	265 (227-324)	558 (452-660)	939 (826-1130)	1450 (1090-1770)	1038
	05-06	306 (279-335)	296 (257-331)	613 (548-669)	1290 (1150-1450)	1730 (1530-2140)	966
	07-08	345 (302-394)	338 (286-398)	700 (564-849)	1380 (1030-1690)	2040 (1570-2650)	1080
	09-10	252 (232-273)	254 (225-274)	485 (448-544)	934 (833-1060)	1480 (1220-1700)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (2011 – 2012)‡

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	245 (226-265)	244 (226-259)	501 (447-560)	1080 (934-1190)	1550 (1310-1840)	2491
Age group							
6-11 years	11-12	147 (124-176)	140 (119-161)	308 (235-441)	661 (471-845)	1030 (684-1350)	397
12-19 years	11-12	210 (176-249)	213 (163-270)	428 (318-576)	796 (619-961)	1010 (856-1340)	388
20 years and older	11-12	265 (244-287)	257 (236-284)	537 (472-613)	1180 (1040-1310)	1700 (1330-2140)	1706
Gender							
Males	11-12	278 (254-304)	270 (248-296)	566 (481-672)	1150 (978-1310)	1650 (1310-2280)	1258
Females	11-12	217 (193-244)	212 (187-243)	438 (386-511)	966 (786-1220)	1440 (1140-1860)	1233
Race/ethnicity							
Mexican Americans	11-12	204 (155-268)	194 (152-228)	391 (277-508)	853 (528-1620)	1650 (538-14400)	317
Non-Hispanic blacks	11-12	356 (311-406)	357 (310-398)	677 (579-847)	1350 (1030-1660)	1940 (1570-2420)	664
Non-Hispanic whites	11-12	238 (219-260)	244 (221-262)	492 (436-564)	1070 (886-1190)	1400 (1230-1710)	814
All Hispanics	11-12	225 (190-267)	208 (184-239)	455 (373-528)	914 (719-1310)	1560 (940-2090)	572
Asians	11-12	168 (135-209)	164 (127-197)	304 (230-427)	762 (469-988)	1200 (790-1820)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	252 (230-276)	233 (205-266)	412 (371-461)	729 (609-905)	1100 (918-1390)	2504
	05-06	301 (281-322)	270 (252-290)	511 (460-575)	1040 (908-1230)	1510 (1360-1750)	2422
	07-08	339 (309-372)	303 (277-333)	562 (493-645)	1110 (908-1300)	1660 (1430-1960)	2608
	09-10	266 (254-279)	242 (224-262)	442 (417-466)	838 (775-894)	1250 (1160-1360)	2747
Age group							
6-11 years	03-04	223 (200-247)	208 (176-264)	343 (299-389)	548 (433-689)	866 (533-958)	333
	05-06	205 (180-234)	195 (176-209)	309 (272-371)	590 (402-668)	866 (620-1300)	342
	07-08	298 (256-346)	280 (249-331)	463 (399-576)	817 (576-1130)	1130 (862-1230)	389
	09-10	214 (192-237)	185 (169-203)	331 (275-365)	568 (400-848)	1020 (539-1650)	416
12-19 years	03-04	192 (172-215)	182 (161-200)	323 (286-360)	484 (412-696)	738 (571-1110)	698
	05-06	201 (183-220)	194 (173-223)	325 (283-343)	511 (397-666)	848 (521-941)	668
	07-08	239 (204-280)	235 (190-283)	381 (312-462)	596 (479-722)	768 (660-1090)	401
	09-10	191 (175-207)	181 (162-199)	293 (257-338)	521 (376-604)	691 (534-938)	420
20 years and older	03-04	267 (242-294)	243 (219-280)	446 (392-490)	788 (641-994)	1280 (991-1560)	1473
	05-06	336 (314-358)	304 (284-323)	573 (506-650)	1200 (1000-1360)	1720 (1490-1900)	1412
	07-08	363 (330-399)	314 (293-351)	618 (533-738)	1200 (1030-1450)	1770 (1570-2040)	1818
	09-10	287 (272-302)	265 (243-288)	484 (450-514)	909 (832-986)	1340 (1230-1460)	1911
Gender							
Males	03-04	260 (238-283)	236 (209-269)	429 (382-480)	739 (591-952)	1300 (916-1800)	1208
	05-06	286 (266-308)	258 (235-291)	498 (422-576)	993 (858-1180)	1410 (1240-1730)	1208
	07-08	338 (308-372)	303 (269-338)	575 (516-626)	1150 (987-1300)	1690 (1420-1940)	1294
	09-10	257 (240-275)	228 (206-258)	445 (402-489)	816 (747-932)	1260 (1070-1420)	1399
Females	03-04	244 (217-275)	227 (198-269)	396 (342-467)	717 (569-905)	1020 (905-1280)	1296
	05-06	316 (287-348)	278 (253-303)	532 (466-623)	1100 (840-1370)	1610 (1360-1840)	1214
	07-08	340 (306-377)	303 (274-335)	555 (451-683)	1030 (852-1330)	1620 (1330-2040)	1314
	09-10	275 (260-291)	256 (229-279)	442 (396-507)	849 (732-950)	1230 (1070-1380)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (creatinine corrected) (2003 – 2010)

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	209 (188-232)	195 (181-209)	335 (293-379)	541 (447-722)	793 (569-1440)	614
	05-06	208 (194-224)	201 (180-220)	304 (270-342)	502 (425-584)	663 (527-919)	614
	07-08	260 (236-285)	244 (226-259)	388 (348-419)	654 (527-858)	1160 (775-1640)	532
	09-10	213 (186-243)	186 (161-214)	312 (285-378)	727 (524-1070)	1410 (1030-2360)	566
Non-Hispanic blacks	03-04	271 (225-326)	258 (207-308)	460 (344-562)	777 (630-919)	1040 (856-1300)	661
	05-06	293 (258-332)	261 (230-297)	449 (377-554)	851 (635-1080)	1480 (925-2070)	655
	07-08	331 (289-379)	293 (257-333)	542 (489-620)	990 (805-1250)	1550 (1160-2470)	597
	09-10	273 (256-292)	253 (224-279)	445 (403-489)	793 (626-887)	1170 (887-1540)	517
Non-Hispanic whites	03-04	263 (235-294)	243 (211-285)	438 (386-485)	773 (607-1020)	1300 (967-1710)	1038
	05-06	323 (296-353)	293 (266-322)	570 (496-650)	1180 (962-1360)	1630 (1370-1840)	966
	07-08	359 (316-407)	314 (280-366)	605 (497-750)	1170 (935-1420)	1740 (1460-2040)	1080
	09-10	283 (269-298)	261 (239-279)	458 (427-500)	891 (776-1000)	1280 (1170-1420)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 9-Hydroxyfluorene (creatinine corrected) (2011 – 2012)‡

Metabolite of Fluorene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	279 (261-298)	248 (229-270)	490 (431-544)	934 (875-1010)	1370 (1140-1660)	2489
Age group							
6-11 years	11-12	212 (183-247)	191 (163-225)	328 (274-365)	544 (413-928)	1000 (688-1450)	396
12-19 years	11-12	203 (182-225)	188 (173-207)	323 (273-380)	538 (430-644)	804 (595-876)	388
20 years and older	11-12	301 (279-325)	271 (244-301)	561 (480-620)	1030 (918-1140)	1480 (1180-2010)	1705
Gender							
Males	11-12	260 (241-281)	226 (205-251)	450 (395-540)	908 (794-1010)	1260 (1000-1650)	1257
Females	11-12	297 (269-329)	270 (229-322)	505 (436-581)	984 (914-1100)	1480 (1140-1850)	1232
Race/ethnicity							
Mexican Americans	11-12	229 (186-283)	187 (162-235)	376 (311-430)	750 (430-1630)	1480 (511-5650)	317
Non-Hispanic blacks	11-12	277 (244-314)	256 (231-294)	447 (399-540)	823 (640-1040)	1240 (918-1460)	664
Non-Hispanic whites	11-12	290 (268-314)	257 (227-290)	542 (451-614)	961 (875-1080)	1350 (1130-1660)	812
All Hispanics	11-12	252 (217-293)	220 (186-267)	415 (343-492)	1000 (520-1330)	1390 (787-3250)	572
Asians	11-12	224 (188-268)	200 (166-273)	381 (310-451)	647 (500-865)	914 (697-1430)	352

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Fluorene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	140 (125-158)	141 (130-154)	266 (229-312)	476 (426-539)	684 (581-763)	2741
	03-04	156 (140-173)	166 (150-179)	287 (263-321)	464 (423-508)	625 (538-745)	2496
	05-06	152 (143-161)	151 (138-163)	275 (257-303)	493 (428-549)	669 (580-852)	2449
	07-08	139 (130-149)	140 (127-154)	252 (228-272)	442 (402-481)	683 (577-760)	2608
	09-10	131 (124-140)	133 (126-141)	235 (222-251)	402 (367-451)	567 (488-659)	2746
Age group 6-11 years	01-02	119 (104-137)	121 (98.0-142)	228 (182-249)	357 (265-501)	501 (367-661)	387
	03-04	138 (124-154)	131 (111-161)	222 (200-275)	397 (304-500)	615 (384-916)	328
	05-06	111 (101-123)	110 (96.9-121)	176 (150-240)	320 (251-375)	381 (329-540)	345
	07-08	121 (105-139)	120 (96.5-154)	200 (174-235)	334 (247-401)	405 (278-557)	389
	09-10	103 (90.7-116)	105 (89.0-119)	156 (142-172)	261 (226-320)	363 (283-628)	416
12-19 years	01-02	133 (110-162)	131 (110-153)	238 (198-303)	431 (376-546)	579 (439-820)	733
	03-04	158 (141-178)	171 (138-193)	300 (262-333)	470 (437-537)	654 (563-745)	692
	05-06	144 (132-157)	154 (130-175)	260 (236-286)	425 (383-496)	666 (496-845)	677
	07-08	136 (122-152)	144 (128-164)	219 (199-283)	374 (315-415)	503 (392-607)	401
	09-10	133 (117-151)	124 (106-142)	244 (212-269)	410 (296-510)	511 (414-742)	420
20 years and older	01-02	145 (127-164)	145 (133-164)	274 (237-329)	499 (440-565)	713 (595-819)	1621
	03-04	157 (141-176)	167 (152-182)	296 (264-337)	469 (430-513)	625 (534-783)	1476
	05-06	159 (147-172)	156 (141-172)	287 (265-328)	516 (438-615)	744 (580-996)	1427
	07-08	142 (132-153)	141 (125-158)	258 (241-280)	470 (417-531)	733 (622-856)	1818
	09-10	135 (126-144)	140 (131-148)	245 (223-265)	412 (377-462)	579 (497-672)	1910
Gender Males	01-02	150 (133-169)	145 (132-164)	284 (235-348)	501 (424-593)	713 (575-845)	1344
	03-04	176 (161-194)	182 (167-198)	321 (283-363)	492 (459-536)	662 (541-929)	1196
	05-06	169 (156-183)	166 (153-180)	289 (265-334)	519 (438-593)	791 (562-1080)	1222
	07-08	153 (140-167)	152 (137-171)	268 (251-292)	448 (406-488)	722 (566-813)	1294
	09-10	139 (129-149)	140 (127-153)	244 (222-260)	399 (363-457)	565 (469-664)	1398
Females	01-02	132 (115-152)	137 (121-151)	254 (221-297)	464 (390-520)	654 (538-769)	1397
	03-04	138 (122-156)	144 (126-164)	263 (240-294)	430 (404-469)	589 (489-680)	1300
	05-06	137 (123-152)	136 (117-153)	260 (234-297)	460 (391-553)	648 (540-809)	1227
	07-08	128 (120-136)	128 (117-139)	230 (205-258)	432 (373-500)	663 (527-740)	1314
	09-10	125 (116-135)	129 (119-136)	231 (214-246)	405 (332-489)	581 (470-689)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.5, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	117 (90.8-152)	116 (88.0-147)	214 (157-306)	369 (254-583)	549 (342-847)	664
	03-04	138 (120-158)	152 (129-175)	246 (213-291)	413 (311-492)	518 (352-896)	611
	05-06	125 (104-151)	129 (107-151)	223 (174-276)	376 (298-460)	523 (399-617)	621
	07-08	118 (108-129)	108 (103-119)	194 (172-216)	341 (271-437)	491 (417-738)	532
	09-10	116 (107-126)	112 (100-126)	195 (168-245)	391 (294-509)	603 (432-825)	565
Non-Hispanic blacks	01-02	150 (127-179)	145 (126-170)	287 (243-327)	493 (423-629)	713 (568-975)	690
	03-04	183 (152-219)	178 (148-213)	350 (268-423)	551 (455-645)	797 (588-1050)	661
	05-06	162 (148-177)	155 (141-173)	307 (259-349)	517 (408-695)	753 (545-1110)	658
	07-08	142 (129-158)	141 (128-163)	264 (234-302)	448 (401-511)	613 (522-722)	597
	09-10	148 (130-167)	161 (135-181)	269 (234-312)	410 (346-489)	536 (435-658)	517
Non-Hispanic whites	01-02	144 (125-166)	144 (131-162)	276 (241-330)	489 (436-552)	661 (550-793)	1204
	03-04	159 (140-180)	167 (151-185)	296 (267-330)	474 (421-534)	641 (516-843)	1036
	05-06	156 (143-170)	155 (137-173)	279 (251-322)	500 (414-606)	743 (570-1050)	982
	07-08	146 (133-159)	149 (132-174)	261 (235-292)	453 (405-503)	725 (590-836)	1080
	09-10	133 (123-144)	136 (128-143)	235 (214-259)	409 (357-462)	570 (470-689)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.5, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (2011 – 2014)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	126 (117-135)	126 (115-134)	240 (219-254)	426 (365-463)	565 (493-682)	2492
	13-14	93.0 (87.9-98.4)	92.0 (86.0-100)	173 (159-188)	296 (270-323)	426 (374-490)	2650
Age group							
6-11 years	11-12	98.6 (87.8-111)	100 (89.0-115)	199 (144-240)	323 (270-405)	473 (327-549)	397
	13-14	68.2 (59.9-77.7)	68.0 (58.0-77.0)	125 (107-151)	208 (166-277)	302 (219-449)	399
12-19 years	11-12	119 (103-138)	132 (108-157)	219 (192-252)	332 (284-365)	438 (344-505)	389
	13-14	92.9 (78.1-110)	99.0 (77.0-132)	179 (147-211)	291 (243-356)	381 (320-422)	449
20 years and older	11-12	130 (121-140)	128 (119-138)	248 (221-270)	450 (372-499)	589 (495-759)	1706
	13-14	96.1 (90.6-102)	94.0 (87.0-103)	179 (160-196)	311 (272-344)	454 (377-533)	1802
Gender							
Males	11-12	133 (121-146)	132 (115-149)	246 (221-271)	434 (365-476)	589 (466-781)	1258
	13-14	97.5 (91.3-104)	96.0 (88.0-105)	175 (154-204)	298 (264-339)	440 (361-545)	1315
Females	11-12	119 (109-131)	117 (107-128)	232 (212-249)	408 (334-471)	557 (465-682)	1234
	13-14	88.8 (82.6-95.5)	91.0 (78.0-100)	171 (161-182)	296 (257-347)	395 (354-488)	1335
Race/ethnicity							
Mexican Americans	11-12	115 (91.3-146)	112 (94.0-131)	214 (156-260)	371 (260-572)	572 (284-1390)	317
	13-14	80.2 (73.9-86.9)	82.0 (75.0-91.0)	136 (124-155)	239 (178-274)	293 (253-361)	450
Non-Hispanic blacks	11-12	141 (129-155)	140 (129-156)	244 (221-268)	439 (366-503)	609 (495-849)	664
	13-14	118 (104-135)	116 (98.0-137)	215 (182-241)	366 (285-412)	480 (372-589)	578
Non-Hispanic whites	11-12	126 (117-136)	128 (114-141)	245 (219-261)	428 (352-475)	557 (456-733)	814
	13-14	94.0 (87.2-101)	94.0 (83.0-103)	179 (159-196)	317 (272-360)	475 (384-550)	979
All Hispanics	11-12	125 (108-146)	123 (105-138)	239 (207-260)	391 (321-502)	544 (439-826)	573
	13-14	84.7 (77.5-92.7)	86.0 (75.0-99.0)	146 (131-169)	245 (208-286)	310 (275-349)	698
Asians	11-12	91.3 (75.3-111)	88.0 (65.0-114)	173 (134-238)	303 (260-387)	447 (315-597)	352
	13-14	59.8 (48.9-73.2)	62.0 (50.0-69.0)	105 (81.0-130)	178 (118-296)	274 (155-403)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 10.0 and 9.0, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	132 (118-147)	125 (113-141)	210 (191-231)	344 (310-385)	464 (404-539)	2741
	03-04	146 (138-155)	141 (133-150)	222 (205-244)	352 (330-384)	487 (416-546)	2496
	05-06	147 (138-157)	140 (130-148)	229 (211-247)	372 (339-406)	502 (446-600)	2449
	07-08	140 (130-151)	137 (124-151)	221 (207-236)	345 (319-372)	457 (407-522)	2608
	09-10	137 (132-143)	130 (125-136)	206 (194-221)	328 (304-346)	448 (395-489)	2746
Age group 6-11 years	01-02	133 (116-153)	126 (110-147)	188 (165-225)	344 (245-437)	467 (364-598)	387
	03-04	145 (129-163)	138 (121-155)	205 (169-240)	315 (244-456)	477 (313-803)	328
	05-06	124 (114-134)	115 (103-133)	191 (162-210)	275 (230-340)	368 (321-396)	345
	07-08	149 (132-169)	139 (127-158)	221 (191-264)	334 (275-410)	424 (332-796)	389
	09-10	134 (121-148)	122 (113-133)	184 (161-209)	290 (241-437)	489 (290-845)	416
12-19 years	01-02	103 (87.9-121)	97.3 (81.4-117)	158 (131-192)	240 (198-322)	354 (235-531)	733
	03-04	119 (108-130)	115 (101-131)	176 (157-197)	275 (230-331)	345 (269-496)	692
	05-06	108 (97.5-119)	108 (95.9-116)	163 (148-180)	268 (199-330)	372 (262-609)	677
	07-08	106 (94.9-117)	106 (90.0-116)	158 (147-171)	243 (197-303)	324 (250-407)	401
	09-10	107 (99.6-115)	102 (94.4-112)	150 (130-164)	227 (190-273)	316 (228-491)	420
20 years and older	01-02	137 (122-153)	132 (117-145)	223 (200-243)	351 (319-395)	476 (421-541)	1621
	03-04	151 (142-161)	147 (134-157)	237 (212-253)	365 (335-397)	500 (422-580)	1476
	05-06	158 (147-170)	151 (137-163)	244 (224-265)	397 (362-420)	554 (478-666)	1427
	07-08	145 (135-157)	142 (127-156)	229 (214-251)	354 (336-383)	495 (420-560)	1818
	09-10	143 (137-149)	139 (132-144)	221 (203-235)	333 (316-356)	455 (407-500)	1910
Gender Males	01-02	122 (108-137)	116 (104-131)	194 (173-218)	321 (262-395)	455 (348-642)	1344
	03-04	138 (131-146)	130 (117-143)	201 (187-227)	335 (301-391)	437 (392-550)	1196
	05-06	135 (126-145)	125 (117-132)	208 (187-229)	341 (300-385)	498 (391-634)	1222
	07-08	129 (117-141)	126 (112-141)	207 (191-223)	327 (290-344)	410 (354-487)	1294
	09-10	125 (117-132)	118 (109-130)	188 (176-206)	288 (266-324)	397 (332-500)	1398
Females	01-02	142 (125-160)	136 (118-156)	226 (199-256)	355 (323-399)	473 (421-541)	1397
	03-04	154 (142-168)	150 (138-160)	241 (212-269)	364 (323-425)	505 (418-635)	1300
	05-06	160 (149-172)	152 (136-166)	251 (229-275)	398 (367-428)	509 (435-638)	1227
	07-08	152 (140-165)	148 (133-162)	231 (213-262)	373 (329-411)	478 (409-577)	1314
	09-10	151 (143-159)	142 (133-151)	226 (196-245)	350 (321-387)	468 (395-553)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	110 (88.6-136)	101 (85.5-131)	162 (138-203)	275 (187-452)	400 (268-755)	664
	03-04	124 (111-140)	122 (107-136)	183 (159-242)	304 (246-392)	392 (318-437)	611
	05-06	112 (99.2-126)	109 (87.1-129)	170 (145-201)	259 (228-307)	353 (297-414)	621
	07-08	115 (102-129)	107 (96.7-118)	159 (143-183)	287 (218-344)	424 (324-520)	532
	09-10	116 (104-129)	104 (93.1-114)	163 (141-203)	312 (225-471)	502 (329-860)	565
Non-Hispanic blacks	01-02	106 (88.7-127)	102 (92.4-111)	172 (141-203)	274 (224-356)	384 (308-598)	690
	03-04	129 (112-148)	125 (107-143)	199 (173-239)	337 (279-395)	428 (374-536)	661
	05-06	114 (106-121)	107 (98.6-114)	179 (163-189)	301 (229-370)	449 (321-771)	658
	07-08	111 (98.8-124)	109 (90.0-126)	181 (153-201)	293 (257-338)	385 (338-446)	597
	09-10	107 (102-113)	98.5 (94.1-108)	165 (149-179)	258 (240-283)	328 (283-386)	517
Non-Hispanic whites	01-02	142 (126-161)	137 (119-153)	228 (206-247)	363 (321-406)	476 (411-552)	1204
	03-04	156 (146-168)	149 (138-158)	239 (214-255)	373 (335-426)	515 (426-649)	1036
	05-06	164 (152-176)	154 (141-165)	247 (228-268)	398 (366-428)	554 (466-739)	982
	07-08	152 (139-166)	152 (135-167)	236 (217-258)	354 (330-383)	464 (407-551)	1080
	09-10	150 (143-157)	143 (135-152)	225 (204-240)	332 (310-365)	451 (378-528)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxyphenanthrene (creatinine corrected) (2011 – 2014)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	143 (134-153)	134 (126-143)	218 (200-247)	357 (320-410)	519 (473-554)	2490
	13-14	108 (103-113)	104 (97.1-110)	164 (157-170)	260 (242-273)	355 (320-379)	2649
Age group							
6-11 years	11-12	142 (131-155)	137 (123-150)	206 (175-217)	292 (255-363)	450 (272-678)	396
	13-14	102 (91.2-115)	102 (87.1-122)	136 (127-164)	225 (185-267)	302 (252-336)	399
12-19 years	11-12	115 (101-132)	117 (87.0-144)	172 (153-213)	254 (215-303)	310 (254-359)	389
	13-14	84.2 (79.0-89.7)	85.7 (76.1-93.0)	127 (111-139)	179 (153-214)	226 (189-320)	449
20 years and older	11-12	148 (138-159)	137 (128-146)	232 (206-260)	377 (337-459)	543 (500-583)	1705
	13-14	113 (108-118)	108 (103-115)	171 (164-184)	268 (255-286)	364 (336-389)	1801
Gender							
Males	11-12	125 (118-132)	117 (107-124)	188 (172-207)	297 (272-360)	437 (364-522)	1257
	13-14	97.8 (92.4-104)	94.1 (88.6-101)	148 (139-157)	235 (212-250)	289 (264-346)	1314
Females	11-12	163 (148-180)	152 (138-175)	250 (217-281)	406 (340-494)	549 (500-664)	1233
	13-14	119 (112-126)	116 (106-123)	182 (168-196)	286 (256-316)	387 (323-482)	1335
Race/ethnicity							
Mexican Americans	11-12	130 (111-152)	117 (102-133)	191 (148-235)	373 (231-676)	497 (337-837)	317
	13-14	91.9 (84.5-99.9)	90.1 (77.4-102)	139 (126-156)	225 (179-258)	265 (236-318)	450
Non-Hispanic blacks	11-12	110 (100-121)	110 (96.1-122)	168 (147-197)	273 (238-319)	387 (322-453)	664
	13-14	90.2 (81.0-100)	92.4 (78.8-105)	141 (122-170)	216 (189-253)	280 (251-358)	578
Non-Hispanic whites	11-12	154 (143-165)	143 (133-154)	234 (207-265)	368 (335-450)	543 (478-593)	812
	13-14	116 (111-123)	112 (103-118)	170 (163-187)	281 (261-303)	379 (325-467)	978
All Hispanics	11-12	140 (125-157)	128 (117-141)	214 (184-244)	357 (274-481)	504 (383-792)	573
	13-14	94.8 (87.4-103)	93.0 (81.7-102)	140 (128-159)	226 (203-246)	265 (246-318)	698
Asians	11-12	122 (106-141)	119 (100-136)	191 (165-222)	286 (260-341)	429 (336-571)	352
	13-14	93.8 (78.4-112)	90.0 (75.9-115)	151 (124-184)	226 (176-298)	298 (226-376)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	54.0 (46.0-63.5)	58.0 (50.0-68.0)	117 (102-140)	240 (201-271)	332 (299-377)	2742
	03-04	59.3 (52.5-66.9)	62.2 (55.4-69.7)	117 (105-129)	206 (180-235)	291 (252-336)	2512
	05-06	65.3 (60.9-70.0)	63.3 (58.5-68.6)	126 (111-139)	234 (203-254)	314 (282-383)	2410
	07-08	63.6 (58.8-68.7)	62.9 (58.0-68.7)	117 (104-130)	204 (184-223)	300 (256-367)	2572
	09-10	64.1 (60.3-68.0)	64.0 (58.0-69.0)	114 (108-122)	204 (185-228)	281 (260-310)	2744
Age group 6-11 years	01-02	40.5 (34.3-47.7)	46.0 (37.0-57.0)	87.0 (71.0-101)	170 (133-207)	257 (195-320)	387
	03-04	45.3 (40.0-51.3)	48.1 (41.9-56.8)	72.7 (63.2-89.4)	135 (104-176)	225 (136-299)	337
	05-06	42.1 (38.4-46.1)	40.1 (36.4-47.2)	70.4 (58.1-83.2)	110 (89.2-132)	152 (112-213)	341
	07-08	48.1 (41.8-55.4)	46.4 (41.7-54.6)	80.3 (68.2-95.4)	144 (98.8-184)	184 (122-229)	382
	09-10	44.6 (39.3-50.7)	44.0 (39.0-51.0)	71.0 (60.0-80.0)	112 (89.0-131)	167 (112-260)	416
12-19 years	01-02	49.5 (37.3-65.7)	52.0 (41.0-68.0)	108 (93.0-122)	210 (145-270)	281 (214-524)	733
	03-04	58.0 (50.7-66.2)	62.5 (54.5-71.6)	104 (88.8-132)	198 (166-215)	258 (199-318)	707
	05-06	60.4 (55.4-65.8)	62.4 (56.3-67.1)	114 (93.8-133)	175 (156-195)	250 (198-291)	664
	07-08	59.4 (52.9-66.7)	60.5 (51.5-67.0)	97.4 (81.2-121)	160 (133-204)	223 (175-264)	398
	09-10	60.6 (53.0-69.3)	62.0 (51.0-68.0)	109 (90.0-126)	170 (130-230)	230 (155-443)	420
20 years and older	01-02	56.8 (48.1-66.9)	60.0 (52.0-73.0)	126 (104-152)	249 (207-292)	342 (308-398)	1622
	03-04	61.5 (53.7-70.4)	64.9 (57.2-73.5)	125 (111-138)	216 (187-250)	310 (259-389)	1468
	05-06	69.6 (63.6-76.2)	67.3 (61.5-75.3)	137 (118-154)	251 (215-280)	348 (298-446)	1405
	07-08	66.2 (60.8-72.1)	65.9 (60.4-71.2)	123 (109-136)	218 (195-251)	334 (272-412)	1792
	09-10	67.3 (63.1-71.8)	68.0 (61.0-75.0)	120 (114-127)	218 (199-244)	296 (266-324)	1908
Gender Males	01-02	62.1 (53.3-72.5)	67.0 (58.0-80.0)	136 (109-161)	274 (245-303)	367 (329-414)	1345
	03-04	72.3 (64.4-81.3)	71.6 (65.8-83.3)	138 (123-150)	240 (200-279)	337 (279-428)	1211
	05-06	76.5 (70.3-83.3)	72.9 (67.4-81.3)	141 (122-156)	254 (219-296)	383 (289-555)	1204
	07-08	75.8 (70.3-81.8)	73.5 (67.6-81.4)	136 (126-149)	229 (199-256)	354 (276-408)	1277
	09-10	72.1 (66.6-78.1)	72.0 (62.0-79.0)	124 (112-139)	227 (198-253)	310 (271-357)	1397
Females	01-02	47.4 (39.1-57.5)	50.0 (41.0-60.0)	105 (88.0-129)	200 (171-240)	294 (236-357)	1397
	03-04	49.0 (42.4-56.6)	52.5 (45.3-58.7)	95.4 (84.1-110)	166 (146-202)	247 (202-291)	1301
	05-06	56.0 (50.2-62.5)	54.4 (49.5-61.0)	107 (94.7-125)	206 (173-245)	275 (248-343)	1206
	07-08	53.7 (48.9-59.0)	53.0 (48.9-59.2)	97.0 (87.0-111)	173 (146-207)	280 (206-327)	1295
	09-10	57.2 (53.2-61.4)	57.0 (52.0-64.0)	108 (98.0-114)	189 (161-214)	253 (214-301)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.2, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	46.8 (32.7-66.8)	51.0 (36.0-73.0)	97.0 (72.0-140)	191 (122-332)	303 (187-652)	665
	03-04	53.9 (46.7-62.1)	60.1 (50.8-68.6)	104 (89.5-115)	164 (144-187)	200 (187-219)	627
	05-06	54.6 (45.0-66.3)	56.2 (47.1-67.7)	96.2 (84.4-108)	164 (120-202)	213 (175-294)	612
	07-08	58.2 (53.9-62.7)	59.3 (50.8-63.0)	98.6 (92.5-113)	167 (141-193)	252 (192-395)	528
	09-10	57.6 (51.3-64.8)	56.0 (45.0-64.0)	95.0 (80.0-116)	190 (153-234)	303 (228-479)	566
Non-Hispanic blacks	01-02	71.1 (58.0-87.1)	74.0 (66.0-90.0)	152 (124-182)	262 (217-311)	374 (284-560)	690
	03-04	81.9 (68.2-98.3)	74.1 (61.0-102)	164 (125-199)	282 (217-375)	390 (289-574)	660
	05-06	77.3 (69.0-86.6)	75.3 (65.8-83.5)	141 (114-172)	267 (202-340)	363 (275-546)	641
	07-08	72.8 (65.2-81.3)	70.7 (62.6-80.2)	127 (115-149)	251 (206-284)	367 (284-455)	597
	09-10	80.1 (71.2-90.0)	86.0 (77.0-98.0)	139 (123-164)	224 (190-265)	295 (252-367)	517
Non-Hispanic whites	01-02	53.1 (43.6-64.6)	57.0 (48.0-68.0)	117 (99.0-144)	242 (199-286)	333 (303-385)	1204
	03-04	58.1 (49.9-67.6)	60.5 (52.1-71.0)	115 (97.9-133)	209 (172-259)	299 (251-358)	1034
	05-06	65.2 (59.4-71.5)	63.7 (57.0-70.4)	130 (109-144)	244 (206-261)	343 (282-439)	974
	07-08	63.3 (56.6-70.8)	64.0 (56.4-71.1)	121 (102-135)	203 (174-234)	298 (238-410)	1050
	09-10	62.9 (57.5-68.7)	63.0 (55.0-69.0)	112 (101-121)	200 (165-242)	279 (242-310)	1200

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.2, 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (2011 – 2012)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	60.8 (56.8-65.2)	60.0 (56.0-65.0)	113 (105-123)	214 (187-242)	288 (263-317)	2489
Age group							
6-11 years	11-12	39.6 (34.3-45.6)	39.0 (33.0-46.0)	78.0 (61.0-96.0)	133 (109-153)	173 (133-237)	397
12-19 years	11-12	56.5 (49.8-64.1)	62.0 (53.0-70.0)	105 (88.0-114)	162 (134-183)	212 (169-248)	389
20 years and older	11-12	64.5 (60.0-69.4)	64.0 (57.0-68.0)	121 (107-132)	233 (198-263)	311 (271-340)	1703
Gender							
Males	11-12	70.3 (63.9-77.4)	69.0 (63.0-77.0)	130 (115-143)	246 (198-288)	339 (277-384)	1257
Females	11-12	53.0 (48.7-57.5)	52.0 (50.0-56.0)	100 (89.0-109)	184 (158-210)	259 (216-282)	1232
Race/ethnicity							
Mexican Americans	11-12	56.3 (43.9-72.1)	56.0 (46.0-69.0)	97.0 (79.0-140)	180 (128-276)	276 (175-508)	317
Non-Hispanic blacks	11-12	78.9 (72.3-86.2)	75.0 (68.0-81.0)	145 (122-166)	246 (212-297)	368 (286-436)	663
Non-Hispanic whites	11-12	58.3 (54.7-62.2)	58.0 (53.0-64.0)	109 (100-121)	204 (169-243)	282 (247-312)	812
All Hispanics	11-12	62.2 (52.7-73.4)	62.0 (53.0-75.0)	112 (99.0-134)	202 (175-248)	268 (214-416)	573
Asians	11-12	50.3 (40.5-62.4)	50.0 (39.0-58.0)	96.0 (78.0-118)	187 (126-240)	257 (193-338)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	50.6 (43.3-59.2)	52.5 (46.4-59.6)	91.4 (78.7-108)	164 (138-200)	233 (206-275)	2742
	03-04	55.4 (51.1-60.0)	52.3 (48.8-55.8)	85.8 (79.4-97.0)	150 (128-174)	212 (180-252)	2512
	05-06	63.1 (58.9-67.5)	57.0 (53.3-61.9)	101 (92.8-110)	178 (157-194)	245 (209-295)	2410
	07-08	64.0 (58.9-69.4)	60.3 (55.3-66.5)	98.2 (87.5-108)	163 (151-179)	229 (199-248)	2572
	09-10	66.9 (64.5-69.3)	62.2 (58.9-65.2)	97.7 (94.7-103)	166 (155-176)	228 (212-251)	2744
Age group 6-11 years	01-02	45.3 (38.8-52.8)	50.0 (40.0-57.8)	85.9 (69.6-100)	144 (105-217)	234 (138-397)	387
	03-04	47.9 (43.6-52.7)	46.6 (41.0-51.4)	66.3 (60.3-72.8)	106 (81.0-125)	183 (108-295)	337
	05-06	45.9 (42.0-50.1)	43.6 (38.4-48.7)	65.8 (56.1-85.2)	101 (85.4-110)	116 (101-135)	341
	07-08	59.7 (51.2-69.4)	56.5 (49.4-65.2)	85.1 (73.1-107)	134 (105-187)	187 (121-437)	382
	09-10	58.2 (52.3-64.9)	54.7 (49.3-60.5)	76.6 (69.6-93.8)	124 (104-145)	170 (134-320)	416
12-19 years	01-02	38.4 (29.6-49.7)	38.5 (30.6-48.7)	64.9 (52.4-84.0)	117 (86.7-167)	173 (128-305)	733
	03-04	43.6 (39.3-48.5)	40.8 (37.7-45.0)	70.6 (55.8-84.7)	106 (88.2-123)	127 (115-176)	707
	05-06	44.5 (39.9-49.7)	42.7 (38.9-47.1)	66.1 (58.0-73.7)	111 (80.0-129)	146 (115-232)	664
	07-08	46.1 (42.0-50.5)	47.0 (39.7-53.0)	69.7 (62.0-78.0)	100 (83.0-113)	127 (105-188)	398
	09-10	48.7 (45.1-52.6)	46.5 (43.0-50.8)	67.8 (59.2-73.3)	97.0 (77.3-137)	140 (103-186)	420
20 years and older	01-02	53.7 (46.2-62.4)	55.6 (49.4-62.7)	94.6 (84.1-112)	173 (145-201)	241 (209-287)	1622
	03-04	58.7 (53.6-64.2)	54.8 (50.7-60.9)	91.6 (83.5-105)	164 (139-182)	227 (183-291)	1468
	05-06	69.1 (64.1-74.6)	63.6 (58.4-67.8)	111 (102-123)	191 (168-216)	267 (232-316)	1405
	07-08	67.8 (62.4-73.8)	64.1 (57.6-71.6)	105 (95.5-119)	177 (160-194)	239 (211-255)	1792
	09-10	71.2 (68.4-74.2)	66.2 (61.9-72.5)	107 (101-113)	177 (164-195)	237 (220-258)	1908
Gender Males	01-02	50.4 (43.3-58.5)	52.5 (47.2-59.2)	91.4 (78.6-103)	176 (140-208)	245 (206-349)	1345
	03-04	56.6 (52.5-61.0)	52.3 (48.1-57.1)	84.7 (79.2-96.4)	157 (132-180)	227 (184-284)	1211
	05-06	61.2 (56.7-65.9)	55.7 (50.0-59.3)	102 (89.3-111)	161 (137-194)	244 (190-310)	1204
	07-08	64.0 (59.3-69.1)	59.8 (55.3-64.1)	99.7 (90.5-108)	172 (152-191)	229 (211-243)	1277
	09-10	64.7 (61.1-68.6)	60.8 (55.1-66.7)	97.7 (89.1-111)	162 (150-179)	229 (202-251)	1397
Females	01-02	50.9 (42.7-60.7)	52.8 (45.5-61.0)	91.6 (75.0-115)	158 (133-183)	214 (200-245)	1397
	03-04	54.3 (48.7-60.5)	52.3 (47.0-57.2)	88.1 (76.4-101)	146 (118-179)	202 (175-246)	1301
	05-06	65.0 (60.0-70.3)	60.5 (55.1-65.3)	101 (91.6-113)	184 (165-201)	256 (224-312)	1206
	07-08	63.9 (57.8-70.7)	61.5 (54.0-69.3)	95.8 (83.7-115)	159 (140-189)	229 (186-256)	1295
	09-10	68.9 (65.8-72.2)	62.9 (59.0-66.9)	97.6 (91.5-106)	168 (150-189)	224 (203-260)	1347

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	43.7 (31.9-59.8)	44.0 (34.3-58.8)	80.8 (59.8-115)	146 (103-245)	245 (144-394)	665
	03-04	48.8 (42.5-55.9)	50.1 (42.4-58.8)	79.5 (68.1-86.1)	124 (96.2-149)	155 (127-206)	627
	05-06	48.7 (43.0-55.2)	46.0 (39.4-56.2)	75.1 (62.9-85.8)	111 (94.5-138)	146 (121-178)	612
	07-08	56.7 (51.1-62.8)	55.0 (47.7-62.2)	83.7 (76.2-90.4)	133 (107-180)	198 (145-233)	528
	09-10	57.2 (50.0-65.4)	49.7 (45.0-55.8)	80.0 (65.2-103)	162 (118-212)	282 (195-402)	566
Non-Hispanic blacks	01-02	50.2 (40.5-62.2)	49.7 (44.3-56.0)	87.7 (72.6-103)	174 (127-224)	257 (178-459)	690
	03-04	57.7 (49.7-67.1)	53.1 (45.7-63.5)	90.2 (77.6-116)	165 (131-189)	224 (173-357)	660
	05-06	54.3 (49.7-59.3)	47.7 (45.4-51.3)	84.8 (71.3-97.8)	150 (116-192)	211 (167-298)	641
	07-08	56.6 (50.4-63.6)	51.2 (46.6-55.9)	95.5 (77.7-107)	154 (136-178)	212 (188-232)	597
	09-10	58.1 (54.5-61.9)	55.7 (51.4-59.7)	87.6 (80.8-96.5)	150 (135-164)	191 (164-210)	517
Non-Hispanic whites	01-02	52.5 (43.8-62.9)	54.8 (47.7-61.9)	92.7 (80.5-113)	170 (140-204)	233 (202-293)	1204
	03-04	57.0 (51.6-62.9)	52.7 (48.7-57.0)	88.5 (79.0-102)	159 (126-187)	239 (180-296)	1034
	05-06	67.9 (62.6-73.7)	60.9 (56.5-66.5)	111 (101-123)	191 (162-224)	274 (231-323)	974
	07-08	65.9 (59.4-73.3)	62.8 (55.1-72.0)	100 (87.2-119)	166 (147-190)	229 (197-252)	1050
	09-10	70.7 (67.2-74.3)	65.4 (61.0-72.0)	104 (95.2-112)	166 (154-186)	228 (212-252)	1200

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxyphenanthrene (creatinine corrected) (2011 – 2012)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	69.2 (65.5-73.1)	62.2 (59.1-66.9)	106 (97.4-116)	182 (167-202)	248 (218-293)	2487
Age group							
6-11 years	11-12	56.8 (50.8-63.6)	54.7 (48.8-60.0)	78.9 (68.8-95.3)	121 (105-148)	180 (131-200)	396
12-19 years	11-12	54.6 (49.9-59.6)	52.4 (44.9-64.0)	81.4 (70.8-92.6)	112 (103-147)	163 (121-203)	389
20 years and older	11-12	73.3 (69.2-77.7)	65.3 (60.9-70.0)	116 (105-127)	200 (178-215)	280 (221-336)	1702
Gender							
Males	11-12	65.9 (61.8-70.3)	58.2 (54.6-61.2)	104 (96.9-113)	181 (159-202)	248 (192-385)	1256
Females	11-12	72.5 (66.9-78.6)	67.9 (62.7-73.4)	108 (94.7-125)	187 (165-206)	248 (213-293)	1231
Race/ethnicity							
Mexican Americans	11-12	63.3 (53.1-75.4)	55.2 (47.3-66.7)	93.2 (78.0-108)	173 (116-237)	243 (166-600)	317
Non-Hispanic blacks	11-12	61.4 (56.1-67.1)	59.2 (52.6-65.4)	90.8 (84.4-98.9)	162 (124-192)	227 (187-272)	663
Non-Hispanic whites	11-12	70.9 (67.0-74.9)	64.0 (59.3-68.8)	110 (101-120)	187 (167-203)	248 (206-293)	810
All Hispanics	11-12	69.6 (61.1-79.3)	61.2 (53.1-70.4)	104 (91.3-123)	180 (144-237)	256 (202-455)	573
Asians	11-12	67.4 (56.5-80.3)	65.2 (50.0-82.4)	105 (88.6-130)	162 (140-200)	231 (171-313)	352

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	105 (92.5-118)	105 (92.0-118)	200 (179-225)	401 (336-480)	649 (542-747)	2741
	03-04	115 (104-128)	118 (107-129)	219 (201-237)	424 (351-487)	647 (509-788)	2426
	05-06	103 (96.1-109)	99.8 (90.3-107)	200 (185-210)	399 (365-429)	593 (463-746)	2448
	07-08	97.6 (91.6-104)	97.8 (90.9-106)	178 (164-195)	319 (283-353)	490 (426-557)	2601
	09-10	71.7 (67.1-76.7)	71.0 (67.0-76.0)	130 (121-140)	248 (225-265)	354 (303-412)	2746
Age group 6-11 years	01-02	105 (91.1-122)	109 (82.0-138)	195 (160-231)	298 (245-346)	412 (319-545)	387
	03-04	116 (99.9-134)	107 (93.0-135)	205 (170-223)	333 (241-435)	472 (322-881)	325
	05-06	89.6 (79.6-101)	84.0 (72.6-103)	154 (123-176)	245 (193-316)	316 (245-569)	345
	07-08	100 (85.9-117)	102 (83.4-126)	175 (144-183)	251 (194-328)	348 (239-862)	389
	09-10	66.2 (58.1-75.4)	69.0 (60.0-75.0)	110 (98.0-126)	198 (145-229)	285 (198-417)	416
12-19 years	01-02	104 (87.3-125)	107 (90.0-122)	201 (165-231)	329 (255-445)	459 (331-631)	733
	03-04	120 (103-141)	127 (107-149)	221 (195-262)	366 (327-424)	564 (391-730)	677
	05-06	105 (96.5-113)	104 (97.3-116)	193 (166-217)	323 (275-383)	453 (377-604)	676
	07-08	103 (92.9-114)	103 (89.5-116)	173 (146-195)	293 (246-352)	371 (323-436)	401
	09-10	77.5 (67.2-89.3)	75.0 (65.0-85.0)	136 (115-168)	237 (184-315)	320 (243-452)	420
20 years and older	01-02	105 (91.7-119)	105 (89.0-118)	201 (180-231)	433 (366-515)	683 (597-806)	1621
	03-04	114 (103-128)	118 (105-130)	221 (203-243)	450 (353-505)	696 (511-885)	1424
	05-06	104 (95.3-113)	101 (89.6-113)	206 (188-223)	419 (384-466)	657 (481-832)	1427
	07-08	96.5 (89.3-104)	96.9 (87.3-106)	183 (163-201)	331 (285-393)	535 (432-624)	1811
	09-10	71.5 (66.8-76.6)	71.0 (67.0-75.0)	131 (121-147)	250 (233-279)	370 (308-435)	1910
Gender Males	01-02	122 (107-138)	117 (106-132)	224 (188-278)	474 (372-597)	734 (597-1010)	1344
	03-04	137 (122-154)	135 (119-157)	251 (221-287)	487 (398-579)	754 (606-913)	1167
	05-06	125 (114-137)	119 (107-136)	227 (204-261)	427 (395-491)	768 (520-951)	1222
	07-08	117 (109-127)	115 (103-130)	209 (191-229)	352 (322-390)	557 (462-674)	1290
	09-10	82.6 (76.0-89.7)	79.0 (73.0-85.0)	147 (126-169)	263 (242-302)	412 (344-466)	1399
Females	01-02	90.8 (77.7-106)	93.0 (80.0-108)	184 (155-207)	328 (291-399)	518 (434-649)	1397
	03-04	97.7 (86.5-110)	100 (86.6-114)	193 (170-210)	351 (287-445)	531 (447-647)	1259
	05-06	84.6 (75.6-94.5)	82.4 (73.1-92.5)	159 (143-176)	363 (285-404)	480 (421-577)	1226
	07-08	81.9 (76.8-87.3)	81.7 (74.7-91.0)	148 (134-173)	272 (237-326)	439 (355-501)	1311
	09-10	62.7 (57.9-67.8)	64.0 (58.0-69.0)	119 (109-131)	223 (189-253)	311 (255-379)	1347

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.6, 5.0, 5.0, 5.0, and 10.0 respectively.

*Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	83.5 (64.1-109)	84.0 (64.0-111)	144 (117-198)	259 (193-430)	454 (253-1140)	664
	03-04	92.7 (81.3-106)	92.8 (84.1-111)	164 (133-204)	317 (236-374)	436 (338-501)	576
	05-06	77.0 (64.1-92.5)	74.8 (60.0-90.8)	138 (110-162)	260 (191-312)	366 (299-471)	620
	07-08	79.1 (71.4-87.7)	75.3 (66.4-85.2)	133 (118-154)	250 (176-330)	414 (302-511)	529
	09-10	56.9 (50.7-63.8)	54.0 (45.0-63.0)	96.0 (79.0-114)	193 (145-244)	317 (240-484)	566
Non-Hispanic blacks	01-02	145 (122-172)	135 (120-163)	281 (228-346)	516 (414-684)	957 (609-1410)	690
	03-04	167 (141-198)	160 (136-198)	315 (243-414)	548 (457-688)	870 (590-1220)	668
	05-06	138 (120-159)	125 (113-147)	260 (211-329)	466 (365-671)	716 (491-1100)	658
	07-08	129 (115-145)	129 (112-148)	237 (205-266)	427 (349-514)	657 (514-839)	596
	09-10	103 (89.1-118)	110 (94.0-123)	196 (168-220)	310 (248-422)	456 (368-544)	517
Non-Hispanic whites	01-02	104 (90.8-120)	106 (92.0-120)	199 (177-224)	401 (331-495)	649 (518-747)	1204
	03-04	114 (100-129)	117 (104-128)	220 (201-235)	443 (333-511)	702 (505-915)	1000
	05-06	101 (93.6-110)	101 (89.3-112)	200 (181-213)	402 (368-434)	657 (449-829)	982
	07-08	97.0 (87.7-107)	97.9 (87.3-111)	179 (155-202)	315 (270-355)	468 (371-590)	1077
	09-10	69.6 (63.3-76.5)	70.0 (65.0-75.0)	121 (110-137)	235 (203-263)	322 (255-410)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 3.6, 5.0, 5.0, 5.0, and 10.0 respectively.

+Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (2011 – 2012)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	61.9 (57.2-67.0)	62.0 (57.0-66.0)	127 (115-136)	235 (201-280)	377 (289-479)	2491
Age group							
6-11 years	11-12	55.3 (48.4-63.2)	60.0 (48.0-73.0)	104 (92.0-122)	192 (169-248)	287 (214-413)	397
12-19 years	11-12	63.6 (55.1-73.5)	65.0 (57.0-76.0)	125 (115-144)	198 (169-235)	296 (200-389)	389
20 years and older	11-12	62.4 (57.2-68.1)	61.0 (54.0-67.0)	130 (111-144)	251 (206-296)	413 (295-499)	1705
Gender							
Males	11-12	72.3 (63.9-81.7)	68.0 (60.0-78.0)	145 (127-168)	273 (205-392)	475 (296-651)	1258
Females	11-12	53.4 (48.3-59.0)	55.0 (48.0-59.0)	105 (93.0-126)	207 (175-235)	297 (251-364)	1233
Race/ethnicity							
Mexican Americans	11-12	54.8 (42.1-71.2)	54.0 (46.0-69.0)	103 (79.0-139)	197 (128-364)	308 (139-1270)	317
Non-Hispanic blacks	11-12	92.6 (84.3-102)	98.0 (84.0-105)	185 (164-202)	348 (261-441)	519 (428-611)	664
Non-Hispanic whites	11-12	58.2 (54.3-62.4)	58.0 (50.0-64.0)	119 (102-132)	221 (184-265)	325 (265-475)	813
All Hispanics	11-12	61.3 (51.2-73.3)	61.0 (54.0-72.0)	123 (101-149)	230 (172-308)	377 (244-452)	573
Asians	11-12	50.0 (39.8-62.9)	47.0 (37.0-59.0)	106 (69.0-141)	213 (136-278)	282 (215-400)	352

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	98.0 (87.4-110)	86.5 (78.8-97.1)	158 (142-174)	299 (252-342)	428 (365-621)	2741
	03-04	108 (101-115)	99.5 (91.9-106)	172 (158-189)	321 (273-363)	497 (406-566)	2426
	05-06	99.5 (93.6-106)	88.1 (83.8-93.5)	164 (151-175)	326 (273-364)	443 (402-525)	2448
	07-08	98.1 (91.3-106)	91.3 (81.8-100)	159 (141-174)	273 (246-301)	380 (333-442)	2601
	09-10	74.9 (71.8-78.1)	68.4 (63.8-73.1)	114 (110-118)	207 (192-224)	281 (257-326)	2746
Age group							
6-11 years	01-02	118 (103-135)	114 (94.9-131)	173 (150-201)	289 (238-368)	410 (308-544)	387
	03-04	124 (110-138)	119 (110-129)	165 (145-202)	283 (231-402)	484 (269-710)	325
	05-06	99.6 (89.4-111)	93.5 (85.7-107)	146 (118-165)	232 (171-292)	292 (232-352)	345
	07-08	123 (107-142)	120 (105-143)	183 (159-200)	230 (201-382)	382 (222-948)	389
	09-10	86.3 (77.7-95.9)	77.9 (69.6-90.6)	129 (110-136)	194 (161-252)	290 (193-484)	416
12-19 years	01-02	81.1 (70.1-93.8)	78.0 (66.7-89.4)	116 (96.5-144)	205 (153-275)	283 (198-511)	733
	03-04	90.3 (81.5-100)	84.9 (76.1-93.9)	139 (116-160)	212 (193-231)	295 (225-429)	677
	05-06	78.2 (70.9-86.3)	72.5 (66.7-82.1)	111 (98.8-121)	183 (141-262)	291 (211-465)	676
	07-08	80.0 (73.6-86.9)	74.4 (67.0-87.5)	117 (110-126)	188 (151-223)	243 (213-284)	401
	09-10	62.3 (57.4-67.6)	60.5 (55.7-64.1)	88.8 (78.2-98.0)	123 (105-182)	190 (124-228)	420
20 years and older	01-02	98.9 (88.3-111)	85.3 (78.3-96.6)	164 (147-183)	320 (273-356)	488 (379-774)	1621
	03-04	109 (102-117)	99.1 (91.7-106)	180 (161-198)	343 (282-385)	523 (417-608)	1424
	05-06	103 (96.3-111)	90.3 (84.4-97.8)	177 (161-200)	350 (319-387)	506 (426-538)	1427
	07-08	98.8 (91.2-107)	90.3 (80.2-100)	163 (140-184)	290 (262-321)	388 (338-464)	1811
	09-10	75.8 (72.4-79.3)	69.0 (63.6-73.6)	118 (113-124)	220 (200-239)	297 (260-341)	1910
Gender							
Males	01-02	98.6 (87.7-111)	87.1 (79.5-98.2)	159 (138-188)	310 (245-368)	505 (356-761)	1344
	03-04	107 (98.2-116)	99.2 (87.4-109)	169 (154-184)	305 (261-343)	491 (383-592)	1167
	05-06	100 (92.6-109)	89.2 (81.5-97.0)	166 (147-184)	326 (260-365)	430 (364-553)	1222
	07-08	98.9 (91.2-107)	91.3 (81.3-101)	166 (146-184)	288 (263-310)	382 (321-449)	1290
	09-10	74.1 (69.7-78.8)	66.4 (59.5-73.8)	117 (108-126)	217 (193-234)	296 (245-351)	1399
Females	01-02	97.5 (84.9-112)	86.4 (76.9-100)	158 (139-178)	292 (245-333)	410 (352-583)	1397
	03-04	109 (99.6-119)	100 (88.9-110)	176 (155-202)	328 (265-398)	497 (380-594)	1259
	05-06	98.7 (91.6-106)	87.3 (80.4-95.1)	160 (144-177)	332 (284-375)	446 (393-518)	1226
	07-08	97.4 (89.6-106)	90.9 (79.4-102)	150 (131-181)	262 (223-305)	377 (299-446)	1311
	09-10	75.6 (71.6-79.8)	69.4 (64.7-75.0)	113 (107-118)	196 (182-219)	274 (241-331)	1347

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2001 – 2010)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	78.2 (62.4-98.0)	70.8 (56.2-87.4)	130 (92.9-171)	224 (173-321)	333 (224-656)	664
	03-04	83.8 (75.1-93.6)	79.5 (72.9-87.0)	137 (111-165)	224 (188-274)	305 (247-406)	576
	05-06	68.8 (61.0-77.7)	61.3 (51.5-73.2)	96.9 (82.9-122)	175 (159-206)	291 (200-387)	620
	07-08	77.1 (68.5-86.7)	71.6 (63.1-78.8)	113 (99.6-133)	200 (160-227)	275 (230-334)	529
	09-10	56.5 (49.6-64.3)	48.4 (42.7-57.0)	82.4 (67.4-97.4)	170 (119-252)	265 (201-417)	566
Non-Hispanic blacks	01-02	102 (85.8-122)	91.9 (79.8-108)	160 (133-202)	296 (234-475)	673 (347-1260)	690
	03-04	117 (102-135)	106 (89.4-126)	186 (157-217)	346 (264-439)	530 (373-772)	668
	05-06	97.0 (86.6-109)	85.7 (77.3-94.1)	141 (125-172)	271 (217-366)	443 (283-623)	658
	07-08	101 (88.7-114)	91.3 (80.9-104)	176 (143-208)	297 (238-360)	411 (344-512)	596
	09-10	74.3 (67.8-81.5)	69.4 (61.4-78.2)	122 (103-140)	194 (176-230)	264 (223-330)	517
Non-Hispanic whites	01-02	103 (91.5-117)	89.4 (80.2-102)	167 (148-193)	324 (272-368)	447 (365-738)	1204
	03-04	112 (104-121)	103 (97.2-108)	183 (161-200)	346 (276-402)	544 (417-690)	1000
	05-06	106 (98.8-114)	93.6 (86.4-102)	178 (160-206)	348 (317-387)	506 (416-551)	982
	07-08	101 (91.1-112)	96.5 (83.5-107)	163 (137-190)	280 (243-317)	378 (316-447)	1077
	09-10	78.3 (73.8-83.0)	72.7 (66.0-79.5)	117 (111-124)	214 (189-238)	281 (253-326)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Hydroxyphenanthrene (creatinine corrected) (2011 – 2012)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	70.5 (66.7-74.6)	62.6 (58.5-67.3)	118 (104-128)	226 (201-247)	325 (271-366)	2489
Age group							
6-11 years	11-12	79.6 (71.8-88.3)	73.9 (65.0-84.2)	116 (100-131)	170 (140-220)	238 (168-383)	396
12-19 years	11-12	61.5 (56.0-67.6)	55.7 (47.0-69.0)	89.0 (83.2-101)	150 (121-196)	229 (173-243)	389
20 years and older	11-12	71.0 (66.9-75.4)	61.6 (58.3-67.0)	123 (110-139)	246 (209-258)	334 (278-409)	1704
Gender							
Males	11-12	67.8 (61.9-74.2)	60.4 (52.2-68.5)	117 (99.1-130)	222 (188-246)	320 (243-474)	1257
Females	11-12	73.2 (67.0-80.0)	64.2 (59.7-72.1)	120 (99.2-138)	238 (187-271)	325 (276-362)	1232
Race/ethnicity							
Mexican Americans	11-12	61.6 (50.6-75.0)	54.2 (44.9-66.7)	91.4 (75.2-118)	204 (110-343)	303 (195-556)	317
Non-Hispanic blacks	11-12	72.1 (66.5-78.1)	68.3 (60.5-77.5)	117 (106-134)	202 (163-245)	311 (239-388)	664
Non-Hispanic whites	11-12	70.8 (66.7-75.2)	62.0 (56.8-67.4)	121 (105-131)	238 (200-254)	325 (258-383)	811
All Hispanics	11-12	68.6 (60.2-78.1)	61.8 (54.3-73.2)	104 (88.1-126)	206 (150-291)	343 (225-500)	573
Asians	11-12	67.0 (55.6-80.7)	60.8 (50.5-79.6)	107 (82.1-144)	178 (150-206)	255 (184-354)	352

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2- & 3-Hydroxyphenanthrene (2013 – 2014)

Metabolites of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	115 (108-123)	112 (104-120)	214 (193-232)	389 (350-432)	544 (493-613)	2650
Age group							
6-11 years	13-14	90.4 (80.7-101)	85.0 (76.0-95.0)	166 (126-188)	262 (222-349)	378 (266-619)	399
12-19 years	13-14	122 (101-149)	137 (100-168)	231 (184-285)	351 (298-450)	536 (358-614)	449
20 years and older	13-14	117 (109-125)	113 (103-123)	218 (195-237)	409 (361-467)	554 (503-673)	1802
Gender							
Males	13-14	129 (120-139)	128 (116-138)	230 (200-252)	426 (361-502)	593 (502-713)	1315
Females	13-14	102 (94.6-111)	98.0 (86.0-109)	197 (181-219)	355 (312-409)	498 (416-599)	1335
Race/ethnicity							
Mexican Americans	13-14	96.4 (90.4-103)	97.0 (88.0-109)	170 (149-191)	272 (238-311)	347 (290-426)	450
Non-Hispanic blacks	13-14	180 (162-201)	164 (145-188)	331 (270-396)	566 (476-687)	742 (632-1040)	578
Non-Hispanic whites	13-14	111 (102-121)	107 (94.0-121)	214 (188-234)	386 (338-446)	544 (477-628)	979
All Hispanics	13-14	102 (93.3-111)	102 (92.0-115)	180 (151-204)	289 (248-321)	369 (321-426)	698
Asians	13-14	88.4 (71.2-110)	81.0 (70.0-110)	148 (118-178)	236 (170-499)	493 (216-749)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 10.0.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2- & 3-Hydroxyphenanthrene (creatinine corrected) (2013 – 2014)

Metabolites of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	133 (127-140)	126 (119-133)	197 (188-210)	333 (303-375)	458 (424-507)	2649
Age group							
6-11 years	13-14	136 (123-150)	133 (116-152)	188 (164-205)	316 (241-375)	422 (358-435)	399
12-19 years	13-14	111 (101-122)	100 (91.4-109)	158 (138-172)	253 (194-340)	373 (294-454)	449
20 years and older	13-14	137 (130-144)	129 (123-137)	206 (195-217)	348 (309-386)	484 (431-525)	1801
Gender							
Males	13-14	130 (122-137)	123 (113-134)	193 (184-209)	324 (272-369)	439 (386-507)	1314
Females	13-14	137 (128-146)	128 (120-140)	202 (190-214)	345 (305-406)	482 (420-557)	1335
Race/ethnicity							
Mexican Americans	13-14	110 (102-120)	104 (94.0-112)	166 (147-188)	241 (211-310)	364 (265-452)	450
Non-Hispanic blacks	13-14	138 (125-152)	131 (113-148)	208 (183-245)	363 (294-427)	477 (406-543)	578
Non-Hispanic whites	13-14	137 (129-147)	130 (123-141)	202 (188-216)	359 (309-413)	483 (431-514)	978
All Hispanics	13-14	114 (105-123)	107 (96.9-117)	171 (151-190)	255 (231-299)	333 (304-391)	698
Asians	13-14	139 (115-167)	139 (118-161)	206 (170-246)	296 (226-458)	458 (275-616)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 4-Hydroxyphenanthrene (2003 – 2006)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	25.1 (22.6-27.9)	25.9 (22.5-29.6)	53.7 (47.4-59.7)	96.8 (85.0-116)	152 (118-176)	2443
	05-06	29.3 (26.7-32.2)	29.2 (25.1-31.8)	56.9 (50.1-66.1)	108 (93.1-124)	157 (134-176)	2131
Age group							
6-11 years	03-04	25.2 (22.3-28.4)	26.3 (22.8-30.0)	45.7 (38.6-53.3)	95.5 (61.7-137)	138 (95.1-202)	321
	05-06	20.4 (17.7-23.4)	20.2 (17.6-23.8)	35.1 (27.4-41.6)	59.6 (43.3-93.0)	96.1 (62.2-155)	307
12-19 years	03-04	23.7 (20.3-27.6)	25.8 (20.5-31.4)	49.9 (45.2-53.0)	77.4 (67.2-95.1)	123 (94.6-142)	683
	05-06	26.6 (23.0-30.8)	27.6 (22.4-31.2)	50.9 (43.5-56.8)	79.4 (71.1-89.9)	108 (89.9-140)	568
20 years and older	03-04	25.3 (22.4-28.6)	25.8 (22.4-29.5)	54.8 (48.6-61.9)	101 (87.1-120)	163 (117-197)	1439
	05-06	31.1 (28.1-34.3)	30.7 (26.4-33.7)	62.9 (52.6-75.1)	119 (97.1-140)	165 (138-188)	1256
Gender							
Males	03-04	30.0 (26.5-34.0)	29.6 (25.5-35.1)	60.4 (53.4-68.7)	110 (90.6-130)	169 (118-211)	1180
	05-06	31.9 (28.6-35.5)	30.7 (25.0-36.8)	60.3 (49.7-72.7)	111 (92.3-134)	153 (119-226)	1064
Females	03-04	21.1 (18.7-23.8)	21.3 (18.3-25.3)	46.5 (41.6-53.3)	88.4 (73.5-103)	136 (106-157)	1263
	05-06	27.1 (23.4-31.4)	26.6 (22.7-31.1)	54.0 (41.9-66.9)	107 (82.6-140)	165 (120-189)	1067
Race/ethnicity							
Mexican Americans	03-04	23.5 (20.9-26.3)	24.4 (21.4-29.4)	46.1 (40.1-53.0)	80.5 (60.9-94.1)	99.7 (80.2-154)	607
	05-06	24.5 (20.3-29.6)	24.8 (20.2-31.3)	43.7 (37.2-54.5)	81.2 (62.8-94.4)	112 (82.6-134)	466
Non-Hispanic blacks	03-04	35.4 (29.6-42.3)	37.1 (29.8-46.1)	71.4 (60.3-83.3)	123 (104-145)	167 (133-215)	657
	05-06	36.8 (31.8-42.5)	33.6 (29.7-42.0)	66.0 (56.0-80.5)	130 (98.0-168)	190 (133-276)	612
Non-Hispanic whites	03-04	24.4 (21.5-27.7)	25.2 (21.8-29.1)	51.5 (45.1-58.5)	97.9 (77.4-127)	163 (113-202)	1021
	05-06	28.6 (25.2-32.4)	28.6 (24.5-31.9)	55.5 (47.3-69.3)	108 (90.9-136)	163 (134-188)	890

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04 and 05-06 are 5.0 and 5.0 respectively.

‡Not measured in Survey years 2007-2008 and 2009-2010 because of potential interferences that would affect the quality of the results.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 4-Hydroxyphenanthrene (2011 – 2012)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	20.5 (19.3-21.8)	19.0 (18.0-21.0)	36.0 (34.0-40.0)	74.0 (62.0-82.0)	99.0 (88.0-114)	2487
Age group							
6-11 years	11-12	17.1 (15.6-18.8)	16.0 (13.0-19.0)	32.0 (25.0-37.0)	54.0 (46.0-59.0)	72.0 (56.0-96.0)	397
12-19 years	11-12	20.4 (18.1-23.0)	18.0 (17.0-23.0)	34.0 (31.0-42.0)	57.0 (47.0-75.0)	84.0 (57.0-120)	389
20 years and older	11-12	21.0 (19.6-22.4)	20.0 (18.0-21.0)	38.0 (35.0-42.0)	78.0 (69.0-87.0)	101 (89.0-128)	1701
Gender							
Males	11-12	21.6 (19.8-23.7)	22.0 (18.0-24.0)	38.0 (34.0-43.0)	74.0 (63.0-83.0)	99.0 (85.0-124)	1255
Females	11-12	19.5 (18.1-21.1)	18.0 (16.0-19.0)	36.0 (33.0-40.0)	74.0 (59.0-82.0)	98.0 (87.0-114)	1232
Race/ethnicity							
Mexican Americans	11-12	19.7 (16.2-24.0)	18.0 (15.0-22.0)	34.0 (27.0-45.0)	65.0 (40.0-96.0)	91.0 (53.0-130)	317
Non-Hispanic blacks	11-12	28.4 (26.0-31.0)	28.0 (25.0-31.0)	50.0 (44.0-57.0)	90.0 (75.0-109)	122 (103-136)	662
Non-Hispanic whites	11-12	19.4 (18.3-20.5)	18.0 (16.0-20.0)	35.0 (32.0-38.0)	73.0 (57.0-81.0)	94.0 (82.0-114)	812
All Hispanics	11-12	21.0 (18.5-23.8)	20.0 (17.0-23.0)	38.0 (32.0-46.0)	68.0 (52.0-88.0)	91.0 (69.0-122)	573
Asians	11-12	16.8 (14.7-19.1)	15.0 (13.0-17.0)	30.0 (25.0-33.0)	55.0 (37.0-86.0)	91.0 (53.0-110)	351

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 10.0.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 4-Hydroxyphenanthrene (creatinine corrected) (2003 – 2006)‡

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	23.3 (21.7-25.0)	22.7 (20.5-24.9)	42.0 (38.6-44.6)	74.3 (66.3-85.4)	114 (102-130)	2443
	05-06	28.9 (26.6-31.4)	26.9 (24.1-29.4)	48.4 (43.9-53.7)	88.3 (77.5-102)	127 (106-145)	2131
Age group							
6-11 years	03-04	26.3 (23.7-29.2)	24.8 (21.6-28.6)	43.3 (35.2-48.8)	72.9 (56.3-113)	126 (79.3-173)	321
	05-06	22.9 (19.8-26.5)	21.7 (20.0-24.8)	36.2 (27.8-43.7)	50.0 (42.7-79.3)	79.3 (50.0-98.3)	307
12-19 years	03-04	17.7 (15.9-19.8)	16.7 (15.7-18.4)	31.4 (26.0-37.1)	47.9 (40.7-54.1)	61.7 (51.7-86.0)	683
	05-06	20.1 (18.2-22.2)	19.0 (16.5-22.9)	30.0 (28.3-33.0)	48.7 (41.0-63.5)	79.4 (53.8-98.2)	568
20 years and older	03-04	24.0 (22.0-26.2)	23.3 (21.1-25.4)	43.5 (39.4-48.1)	79.0 (66.8-100)	121 (104-138)	1439
	05-06	31.4 (29.0-34.1)	29.4 (26.9-32.4)	54.6 (48.0-61.6)	102 (86.4-109)	139 (115-166)	1256
Gender							
Males	03-04	23.4 (21.6-25.4)	22.7 (20.3-24.9)	40.9 (35.9-45.7)	72.7 (61.5-86.8)	112 (100-126)	1180
	05-06	26.1 (23.8-28.7)	24.1 (22.2-28.2)	44.3 (40.0-51.1)	74.3 (61.6-87.7)	102 (87.3-120)	1064
Females	03-04	23.2 (21.2-25.5)	22.8 (19.7-26.0)	42.5 (38.3-46.2)	75.1 (63.4-94.0)	119 (93.1-139)	1263
	05-06	31.8 (28.7-35.3)	28.9 (25.8-31.8)	54.2 (46.0-63.2)	103 (85.4-127)	145 (119-174)	1067
Race/ethnicity							
Mexican Americans	03-04	21.2 (18.8-23.8)	20.7 (19.1-22.9)	35.9 (29.8-40.7)	59.0 (43.3-87.5)	83.4 (60.9-139)	607
	05-06	22.5 (20.1-25.3)	21.6 (18.8-27.1)	34.7 (31.4-41.5)	54.5 (48.2-61.6)	81.3 (59.8-86.1)	466
Non-Hispanic blacks	03-04	25.0 (21.6-28.9)	25.3 (23.1-28.8)	42.0 (37.4-51.4)	75.0 (61.6-87.9)	102 (79.2-137)	657
	05-06	25.8 (23.0-29.0)	24.5 (22.0-26.8)	39.4 (36.2-44.7)	68.5 (59.8-88.6)	103 (80.0-146)	612
Non-Hispanic whites	03-04	23.7 (21.5-26.2)	22.4 (19.4-25.4)	43.6 (38.8-47.3)	82.2 (68.5-101)	126 (103-143)	1021
	05-06	30.5 (27.3-34.1)	28.5 (25.0-31.6)	53.0 (45.5-61.5)	102 (83.0-115)	138 (112-174)	890

‡Not measured in Survey years 2007-2008 and 2009-2010 because of potential interferences that would affect the quality of the results.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 4-Hydroxyphenanthrene (creatinine corrected) (2011 – 2012)

Metabolite of Phenanthrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	23.3 (22.4-24.2)	22.0 (20.9-22.9)	36.9 (33.8-40.0)	65.0 (60.0-76.3)	106 (85.9-121)	2485
Age group							
6-11 years	11-12	24.4 (22.1-26.9)	23.7 (21.5-25.9)	36.2 (31.9-39.1)	55.0 (47.9-69.7)	78.9 (57.1-126)	396
12-19 years	11-12	19.7 (17.7-21.9)	19.7 (17.2-21.7)	28.4 (26.3-34.7)	46.6 (38.5-57.9)	64.9 (46.1-78.9)	389
20 years and older	11-12	23.8 (22.6-25.0)	22.1 (20.9-23.3)	38.4 (34.2-43.8)	70.5 (60.0-88.8)	115 (91.4-136)	1700
Gender							
Males	11-12	20.3 (19.3-21.4)	19.4 (18.5-20.6)	31.4 (28.4-35.4)	57.7 (53.3-63.8)	79.6 (63.8-111)	1254
Females	11-12	26.6 (24.9-28.5)	24.5 (22.9-26.2)	41.8 (37.4-46.6)	78.9 (66.7-88.8)	117 (95.7-142)	1231
Race/ethnicity							
Mexican Americans	11-12	22.2 (19.1-25.8)	20.9 (19.2-23.6)	35.5 (29.6-42.1)	59.7 (43.2-67.6)	67.6 (48.0-183)	317
Non-Hispanic blacks	11-12	22.1 (20.3-24.0)	21.3 (19.7-23.4)	34.9 (30.8-38.8)	53.5 (49.0-61.3)	74.5 (63.7-84.7)	662
Non-Hispanic whites	11-12	23.5 (22.1-24.9)	22.0 (20.3-23.4)	37.3 (32.3-43.7)	70.5 (60.0-81.6)	111 (88.8-142)	810
All Hispanics	11-12	23.5 (21.2-25.9)	22.9 (20.7-25.5)	37.4 (33.0-41.8)	60.1 (45.5-79.6)	90.7 (60.1-133)	573
Asians	11-12	22.5 (20.2-25.1)	21.5 (17.9-24.5)	34.9 (32.3-40.1)	60.8 (50.5-71.0)	85.1 (64.2-102)	351

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Phenanthrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	89.2 (79.8-99.7)	91.3 (83.5-98.8)	189 (168-208)	389 (345-459)	569 (493-676)	2515
	05-06	98.3 (91.0-106)	94.0 (85.5-102)	206 (181-227)	440 (373-521)	673 (585-829)	2415
	07-08	118 (108-129)	118 (107-133)	233 (208-263)	439 (392-487)	675 (543-844)	2581
	09-10	119 (110-130)	118 (109-129)	231 (213-251)	451 (401-509)	675 (580-822)	2746
Age group 6-11 years	03-04	112 (96.9-130)	119 (99.0-143)	193 (163-229)	351 (233-484)	514 (336-680)	333
	05-06	103 (91.3-117)	99.8 (91.7-105)	170 (139-206)	342 (222-413)	469 (353-786)	342
	07-08	146 (127-168)	149 (131-171)	231 (203-288)	395 (293-557)	569 (395-1060)	387
	09-10	147 (125-174)	143 (127-164)	245 (203-312)	443 (312-681)	756 (383-2410)	415
12-19 years	03-04	119 (103-137)	115 (98.0-145)	244 (213-274)	506 (359-608)	705 (636-788)	705
	05-06	118 (104-134)	108 (93.2-132)	218 (179-266)	409 (332-557)	837 (481-992)	667
	07-08	149 (130-170)	145 (118-165)	282 (228-343)	452 (399-515)	614 (476-843)	401
	09-10	152 (132-174)	156 (130-175)	280 (237-305)	414 (348-543)	642 (452-910)	420
20 years and older	03-04	82.8 (73.0-93.8)	83.8 (75.6-92.4)	177 (155-203)	387 (337-437)	553 (483-644)	1477
	05-06	94.9 (86.3-104)	89.1 (79.8-100)	208 (173-245)	476 (368-563)	677 (563-913)	1406
	07-08	111 (100-123)	114 (95.7-129)	226 (199-258)	446 (370-506)	719 (525-904)	1793
	09-10	113 (103-122)	110 (103-119)	222 (199-244)	452 (401-531)	674 (559-837)	1911
Gender Males	03-04	108 (96.0-122)	111 (98.7-121)	227 (197-265)	459 (387-518)	644 (526-811)	1214
	05-06	114 (104-125)	108 (98.4-119)	235 (196-279)	465 (386-585)	793 (634-980)	1208
	07-08	134 (120-150)	131 (113-155)	260 (229-293)	474 (409-560)	748 (554-956)	1279
	09-10	128 (114-143)	128 (114-141)	230 (205-251)	465 (393-555)	713 (559-923)	1398
Females	03-04	74.0 (64.3-85.1)	75.3 (66.3-83.9)	158 (143-173)	334 (258-407)	502 (389-604)	1301
	05-06	84.8 (74.5-96.5)	80.0 (69.8-89.9)	173 (148-213)	421 (313-521)	617 (534-677)	1207
	07-08	105 (94.7-116)	111 (92.6-123)	213 (194-227)	387 (342-444)	580 (486-769)	1302
	09-10	112 (101-125)	109 (98.0-124)	231 (209-260)	425 (390-495)	652 (566-780)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	89.4 (78.6-102)	92.4 (79.8-113)	173 (153-191)	331 (281-415)	495 (404-548)	623
	05-06	95.6 (81.0-113)	92.3 (80.1-112)	179 (149-220)	332 (261-455)	490 (367-756)	611
	07-08	119 (110-129)	117 (104-132)	196 (170-230)	380 (289-494)	593 (485-755)	531
	09-10	134 (122-147)	134 (116-154)	245 (198-314)	453 (392-591)	706 (551-975)	566
Non-Hispanic blacks	03-04	128 (105-157)	127 (111-157)	296 (226-356)	552 (399-669)	702 (569-935)	663
	05-06	116 (98.5-137)	108 (91.0-124)	230 (185-332)	517 (401-639)	743 (559-1060)	653
	07-08	136 (122-153)	142 (122-160)	282 (250-320)	548 (480-610)	752 (617-871)	592
	09-10	165 (146-188)	170 (142-201)	321 (280-392)	656 (557-727)	989 (727-1370)	516
Non-Hispanic whites	03-04	84.6 (73.3-97.8)	85.2 (75.2-97.4)	182 (156-213)	386 (336-463)	566 (464-748)	1040
	05-06	94.9 (85.4-106)	91.3 (80.3-104)	203 (170-235)	399 (351-538)	677 (563-899)	968
	07-08	116 (102-131)	117 (102-136)	235 (198-287)	436 (364-500)	719 (473-981)	1059
	09-10	108 (96.3-122)	107 (99.0-118)	209 (176-239)	398 (329-474)	603 (495-739)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 5.0, 5.0, 5.0, and 10.0 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (2011 – 2014)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	111 (101-123)	113 (99.0-124)	217 (196-254)	437 (373-501)	635 (538-784)	2487
	13-14	132 (124-140)	119 (111-127)	226 (209-235)	433 (381-495)	650 (544-733)	2650
Age group							
6-11 years	11-12	130 (111-153)	127 (107-160)	252 (202-301)	386 (362-462)	521 (431-693)	397
	13-14	131 (118-145)	125 (111-142)	218 (191-259)	376 (276-495)	544 (461-615)	399
12-19 years	11-12	131 (110-156)	141 (117-159)	247 (199-331)	451 (331-547)	555 (454-716)	387
	13-14	160 (133-192)	165 (127-191)	276 (225-352)	432 (352-666)	748 (432-849)	449
20 years and older	11-12	107 (96.2-119)	104 (95.0-118)	208 (181-244)	443 (373-504)	685 (543-882)	1703
	13-14	128 (120-137)	113 (105-122)	215 (200-232)	438 (374-497)	656 (514-773)	1802
Gender							
Males	11-12	122 (107-139)	121 (103-131)	231 (198-276)	494 (380-606)	756 (547-1020)	1255
	13-14	134 (124-146)	122 (110-136)	225 (207-244)	450 (363-511)	621 (544-690)	1315
Females	11-12	102 (92.6-113)	104 (92.0-117)	209 (183-243)	384 (340-447)	543 (443-652)	1232
	13-14	129 (121-138)	115 (106-125)	226 (206-238)	429 (376-494)	665 (518-773)	1335
Race/ethnicity							
Mexican Americans	11-12	127 (104-157)	129 (112-157)	225 (191-262)	435 (262-685)	685 (342-1060)	316
	13-14	125 (117-133)	121 (112-132)	204 (174-212)	295 (251-386)	428 (348-519)	450
Non-Hispanic blacks	11-12	140 (123-160)	138 (117-168)	292 (246-335)	476 (384-685)	779 (596-1070)	662
	13-14	182 (168-198)	170 (150-192)	358 (305-393)	576 (484-690)	836 (633-1020)	578
Non-Hispanic whites	11-12	104 (94.6-113)	102 (94.0-116)	199 (176-231)	447 (349-513)	606 (504-803)	812
	13-14	128 (118-138)	111 (101-124)	222 (194-237)	450 (374-511)	656 (544-773)	979
All Hispanics	11-12	131 (114-152)	136 (119-156)	248 (209-279)	416 (329-501)	654 (440-873)	572
	13-14	129 (120-139)	124 (114-141)	209 (196-225)	328 (276-398)	450 (398-556)	698
Asians	11-12	85.6 (72.3-101)	78.0 (65.0-94.0)	175 (124-218)	301 (243-359)	373 (325-571)	352
	13-14	93.2 (83.6-104)	83.0 (72.0-101)	137 (120-146)	227 (166-310)	312 (263-426)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 10.0 and 70.0, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (creatinine corrected) (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	83.4 (77.4-90.0)	79.9 (72.6-86.9)	149 (133-167)	279 (236-343)	424 (352-474)	2515
	05-06	95.1 (89.1-102)	85.5 (81.0-91.1)	173 (161-184)	338 (292-371)	492 (427-550)	2415
	07-08	119 (110-129)	113 (103-127)	200 (180-224)	364 (321-411)	527 (467-587)	2581
	09-10	125 (116-134)	117 (109-126)	202 (187-222)	366 (337-401)	530 (485-583)	2746
Age group							
6-11 years	03-04	119 (102-138)	112 (98.2-137)	185 (156-225)	336 (227-440)	475 (336-566)	333
	05-06	115 (102-128)	105 (94.7-116)	181 (145-217)	285 (242-385)	407 (308-517)	342
	07-08	180 (156-206)	171 (145-197)	255 (233-316)	457 (329-593)	604 (457-1320)	387
	09-10	192 (164-225)	181 (161-203)	283 (232-355)	471 (356-836)	812 (405-2030)	415
12-19 years	03-04	89.4 (77.7-103)	81.5 (74.3-93.0)	146 (123-187)	269 (196-364)	364 (251-611)	705
	05-06	88.7 (78.7-99.9)	80.9 (73.8-92.3)	146 (115-176)	250 (199-358)	400 (252-682)	667
	07-08	116 (105-127)	112 (98.3-127)	178 (154-202)	301 (245-349)	405 (321-558)	401
	09-10	122 (111-133)	121 (108-133)	176 (155-198)	262 (211-337)	371 (280-421)	420
20 years and older	03-04	79.1 (73.2-85.4)	73.5 (66.7-82.3)	142 (127-160)	278 (236-331)	424 (349-472)	1477
	05-06	94.1 (87.1-102)	82.5 (75.8-89.3)	177 (163-194)	352 (294-397)	502 (444-558)	1406
	07-08	114 (105-125)	106 (95.3-124)	194 (173-217)	364 (317-415)	510 (456-591)	1793
	09-10	119 (111-128)	109 (104-118)	199 (178-220)	365 (336-407)	530 (481-606)	1911
Gender							
Males	03-04	84.8 (77.3-93.1)	82.8 (72.7-91.0)	163 (145-175)	290 (241-352)	416 (353-513)	1214
	05-06	91.6 (84.3-99.6)	84.6 (76.9-95.5)	169 (152-182)	308 (268-364)	492 (426-589)	1208
	07-08	113 (102-125)	109 (94.3-124)	193 (176-214)	379 (308-440)	549 (456-629)	1279
	09-10	115 (104-126)	105 (93.9-116)	184 (168-205)	362 (317-419)	546 (452-708)	1398
Females	03-04	82.1 (73.5-91.7)	78.3 (69.2-86.8)	137 (119-169)	274 (215-350)	440 (313-479)	1301
	05-06	98.7 (91.7-106)	86.8 (78.5-92.8)	175 (156-195)	345 (295-390)	482 (395-558)	1207
	07-08	125 (114-137)	119 (104-135)	203 (179-238)	348 (302-405)	503 (425-619)	1302
	09-10	135 (123-148)	126 (115-140)	216 (199-242)	371 (329-421)	526 (473-572)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (creatinine corrected) (2003 – 2010)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	81.2 (73.9-89.2)	80.9 (70.4-91.7)	146 (122-167)	247 (221-301)	372 (321-460)	623
	05-06	84.9 (76.4-94.2)	78.4 (67.7-91.2)	132 (118-145)	237 (203-287)	374 (279-482)	611
	07-08	116 (107-125)	105 (96.5-116)	173 (156-188)	296 (250-367)	501 (395-629)	531
	09-10	133 (118-150)	119 (105-140)	216 (178-266)	388 (295-527)	643 (464-1180)	566
Non-Hispanic blacks	03-04	90.7 (77.3-106)	92.6 (76.6-106)	171 (140-211)	325 (226-433)	451 (301-680)	663
	05-06	81.2 (70.7-93.2)	74.9 (65.6-84.8)	140 (113-173)	295 (206-403)	477 (324-643)	653
	07-08	106 (93.1-121)	104 (93.4-123)	201 (162-249)	352 (302-464)	537 (384-662)	592
	09-10	120 (109-131)	115 (103-123)	206 (185-226)	390 (323-476)	567 (471-757)	516
Non-Hispanic whites	03-04	83.1 (75.1-91.9)	76.3 (69.0-86.6)	146 (127-174)	285 (238-360)	438 (360-506)	1040
	05-06	99.3 (91.2-108)	90.6 (82.2-99.5)	188 (169-200)	358 (305-395)	495 (427-555)	968
	07-08	120 (108-134)	113 (97.7-135)	206 (178-237)	379 (300-438)	510 (438-617)	1059
	09-10	122 (111-133)	116 (107-126)	197 (174-222)	357 (326-393)	511 (446-569)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxypyrene (creatinine corrected) (2011 – 2014)

Metabolite of Pyrene

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	127 (119-137)	119 (110-128)	215 (193-241)	395 (356-449)	542 (464-703)	2485
	13-14	153 (145-162)	146 (137-155)	245 (226-263)	400 (377-441)	549 (503-570)	2649
Age group							
6-11 years	11-12	187 (165-212)	181 (153-213)	276 (232-317)	415 (356-477)	500 (450-671)	396
	13-14	197 (175-222)	190 (160-236)	303 (261-345)	443 (374-491)	538 (456-654)	399
12-19 years	11-12	126 (110-144)	121 (102-143)	194 (156-256)	313 (252-396)	409 (325-480)	387
	13-14	145 (131-159)	140 (114-152)	215 (177-245)	378 (253-550)	550 (380-571)	449
20 years and older	11-12	122 (114-131)	112 (103-122)	207 (189-227)	411 (356-464)	589 (466-793)	1702
	13-14	150 (142-159)	143 (132-154)	243 (225-263)	399 (379-440)	543 (503-593)	1801
Gender							
Males	11-12	114 (103-127)	106 (95.0-115)	196 (170-230)	378 (296-452)	506 (394-804)	1254
	13-14	135 (126-144)	128 (117-138)	222 (198-238)	372 (344-405)	520 (476-570)	1314
Females	11-12	141 (130-154)	133 (124-143)	232 (209-262)	422 (364-464)	589 (464-748)	1231
	13-14	173 (161-185)	165 (151-182)	263 (242-291)	422 (380-484)	554 (491-625)	1335
Race/ethnicity							
Mexican Americans	11-12	143 (123-166)	136 (116-153)	225 (176-270)	385 (267-525)	512 (374-829)	316
	13-14	143 (131-156)	136 (119-155)	212 (188-249)	327 (271-413)	447 (337-549)	450
Non-Hispanic blacks	11-12	109 (94.8-126)	114 (95.2-138)	191 (166-233)	330 (276-396)	453 (411-556)	662
	13-14	139 (125-156)	138 (115-157)	236 (200-287)	411 (354-479)	531 (493-634)	578
Non-Hispanic whites	11-12	127 (117-138)	113 (104-126)	218 (192-249)	415 (356-465)	580 (464-793)	810
	13-14	158 (147-170)	150 (137-166)	257 (230-283)	422 (386-469)	554 (507-601)	978
All Hispanics	11-12	147 (133-162)	144 (127-158)	244 (200-262)	395 (295-458)	525 (436-600)	572
	13-14	144 (134-155)	138 (127-151)	219 (198-249)	345 (298-406)	452 (379-517)	698
Asians	11-12	115 (101-130)	113 (96.3-131)	173 (156-191)	263 (228-326)	437 (303-601)	352
	13-14	146 (132-162)	143 (116-165)	219 (189-261)	354 (293-450)	495 (390-618)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Pyrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynaphthalene (1-Naphthol) (2003 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	2.68 (2.36-3.05)	2.26 (1.98-2.65)	7.66 (6.27-9.42)	18.5 (15.5-20.9)	26.1 (23.0-33.6)	2595
	05-06	2.64 (2.39-2.92)	1.94 (1.69-2.24)	8.45 (7.05-9.98)	29.9 (23.2-37.1)	48.1 (41.3-65.6)	2385
	07-08	2.58 (2.19-3.03)	1.98 (1.75-2.28)	6.87 (5.00-8.76)	17.2 (13.0-22.2)	29.2 (22.2-41.1)	2496
	09-10	2.05 (1.88-2.25)	1.74 (1.57-1.91)	5.19 (4.29-6.20)	14.2 (12.1-16.7)	23.9 (20.9-27.6)	2747
Age group							
6-11 years	03-04	1.54 (1.36-1.75)	1.33 (1.11-1.68)	2.79 (2.18-3.52)	5.78 (4.11-8.20)	10.5 (5.87-17.0)	340
	05-06	1.19 (1.01-1.40)	1.03 (.775-1.29)	2.16 (1.70-2.73)	8.10 (3.87-10.7)	11.0 (7.29-44.1)	336
	07-08	1.54 (1.28-1.85)	1.50 (1.22-1.68)	3.09 (2.17-3.80)	5.94 (4.16-9.29)	9.36 (4.68-14.3)	370
	09-10	1.17 (1.03-1.34)	1.10 (.869-1.27)	2.31 (1.85-2.56)	5.38 (2.93-7.30)	7.77 (5.40-11.4)	416
12-19 years	03-04	1.96 (1.68-2.28)	1.67 (1.50-1.97)	4.19 (3.10-5.40)	10.5 (8.43-14.3)	20.9 (13.5-26.1)	727
	05-06	1.71 (1.49-1.96)	1.36 (1.11-1.70)	3.76 (3.11-4.37)	14.1 (9.09-23.5)	25.8 (12.4-46.2)	655
	07-08	1.84 (1.49-2.26)	1.51 (1.19-2.01)	4.03 (2.55-5.75)	10.0 (6.70-13.5)	14.8 (12.0-21.3)	386
	09-10	1.59 (1.18-2.15)	1.28 (.943-2.12)	3.94 (2.39-5.58)	9.24 (5.98-14.9)	17.0 (11.3-21.5)	420
20 years and older	03-04	3.02 (2.58-3.52)	2.65 (2.20-3.20)	9.42 (7.32-11.5)	20.6 (16.5-23.4)	29.4 (23.4-37.4)	1528
	05-06	3.10 (2.74-3.51)	2.33 (2.03-2.82)	10.5 (8.18-13.3)	34.5 (26.7-43.4)	55.1 (42.2-80.4)	1394
	07-08	2.88 (2.37-3.49)	2.27 (1.83-2.80)	8.19 (6.01-10.7)	19.6 (15.0-25.5)	33.0 (23.6-54.9)	1740
	09-10	2.27 (2.05-2.52)	1.91 (1.66-2.14)	6.19 (4.84-7.25)	16.1 (13.2-18.6)	26.3 (21.9-30.7)	1911
Gender							
Males	03-04	3.17 (2.82-3.56)	2.84 (2.37-3.39)	8.79 (7.13-11.0)	19.6 (16.1-22.2)	25.8 (22.5-30.6)	1243
	05-06	2.97 (2.63-3.35)	2.37 (1.98-2.97)	8.76 (7.14-10.7)	28.9 (21.7-33.0)	44.1 (36.0-52.3)	1197
	07-08	2.94 (2.58-3.36)	2.37 (2.05-2.93)	7.75 (5.87-9.83)	15.9 (13.8-21.3)	28.2 (21.4-36.8)	1239
	09-10	2.30 (2.03-2.61)	1.93 (1.63-2.20)	6.32 (4.32-7.67)	15.3 (12.8-17.8)	23.9 (21.6-27.6)	1399
Females	03-04	2.29 (1.94-2.72)	1.85 (1.50-2.31)	6.38 (4.45-8.81)	17.9 (14.0-21.5)	28.5 (21.5-37.4)	1352
	05-06	2.36 (2.01-2.77)	1.59 (1.42-1.82)	7.35 (5.57-10.2)	33.6 (21.6-43.9)	56.8 (41.6-101)	1188
	07-08	2.27 (1.85-2.79)	1.58 (1.32-1.97)	5.26 (4.03-7.73)	17.7 (11.9-24.8)	32.0 (21.3-78.9)	1257
	09-10	1.84 (1.60-2.12)	1.56 (1.39-1.72)	4.50 (3.65-5.34)	12.6 (10.2-16.6)	24.0 (17.7-31.5)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.047, 0.048, 0.045, and 0.044 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynaphthalene (1-Naphthol) (2003 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity Mexican Americans	03-04	1.95 (1.73-2.19)	1.65 (1.37-2.04)	4.38 (3.52-5.30)	11.6 (9.04-15.5)	20.1 (14.9-22.5)	651
	05-06	1.54 (1.30-1.83)	1.29 (1.09-1.55)	3.72 (2.68-4.43)	11.8 (8.10-15.6)	22.2 (15.2-34.0)	607
	07-08	1.61 (1.38-1.89)	1.48 (1.23-1.66)	3.38 (2.58-4.04)	8.75 (6.12-11.9)	16.1 (8.19-29.4)	506
	09-10	1.71 (1.43-2.04)	1.50 (1.36-1.80)	3.38 (2.55-5.27)	10.7 (6.93-14.3)	17.6 (13.7-23.3)	566
Non-Hispanic blacks	03-04	3.36 (2.80-4.02)	2.65 (2.17-3.46)	7.80 (6.52-10.8)	21.9 (17.0-29.2)	35.4 (27.0-48.9)	677
	05-06	3.42 (2.83-4.14)	2.67 (2.20-3.43)	11.9 (9.12-14.6)	29.9 (24.4-41.0)	56.4 (42.8-71.6)	641
	07-08	2.88 (2.48-3.35)	2.41 (2.12-2.91)	8.15 (5.31-10.7)	19.3 (13.7-27.1)	31.6 (21.3-42.4)	574
	09-10	3.06 (2.58-3.64)	3.04 (2.38-3.49)	9.21 (7.41-10.3)	19.3 (15.7-23.2)	29.6 (24.2-38.8)	517
Non-Hispanic whites	03-04	2.78 (2.40-3.22)	2.29 (1.93-2.81)	8.63 (6.65-10.8)	19.8 (15.9-22.5)	27.1 (23.2-35.1)	1074
	05-06	2.72 (2.30-3.21)	1.98 (1.56-2.43)	8.66 (6.73-11.3)	32.5 (22.6-42.2)	51.3 (41.0-85.5)	952
	07-08	2.79 (2.23-3.50)	2.08 (1.74-2.69)	7.52 (4.97-10.4)	18.7 (12.6-26.9)	32.2 (22.5-62.0)	1022
	09-10	2.00 (1.78-2.26)	1.70 (1.49-1.94)	4.77 (3.97-5.70)	13.2 (10.3-17.7)	23.9 (19.5-30.8)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08 and 09-10 are 0.047, 0.048, 0.045, and 0.044 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynaphthalene (1-Naphthol) (2011 – 2014)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.67 (1.52-1.84)	1.41 (1.26-1.59)	3.90 (3.25-5.05)	13.1 (10.9-15.7)	22.1 (19.0-26.6)	2492
	13-14	1.52 (1.37-1.68)	1.16 (1.03-1.28)	3.25 (2.92-3.82)	11.7 (9.55-15.2)	21.3 (17.1-28.7)	2640
Age group							
6-11 years	11-12	.960 (.803-1.15)	.970 (.727-1.20)	2.01 (1.63-2.51)	4.02 (3.11-7.07)	7.99 (5.05-12.6)	397
	13-14	.798 (.694-.917)	.678 (.595-.848)	1.44 (1.21-1.70)	2.98 (2.32-4.05)	5.12 (3.64-9.16)	399
12-19 years	11-12	1.16 (.895-1.50)	1.04 (.843-1.33)	2.34 (1.77-3.34)	8.38 (3.43-15.0)	14.6 (8.38-22.4)	389
	13-14	1.06 (.900-1.26)	.894 (.760-1.02)	1.79 (1.43-2.52)	6.62 (3.54-10.4)	10.5 (7.62-18.2)	449
20 years and older	11-12	1.88 (1.71-2.06)	1.59 (1.40-1.73)	5.05 (3.98-5.82)	14.7 (12.4-17.9)	23.7 (19.8-34.2)	1706
	13-14	1.71 (1.52-1.92)	1.29 (1.16-1.44)	3.98 (3.33-4.66)	13.9 (10.9-18.0)	25.4 (18.8-32.6)	1792
Gender							
Males	11-12	1.89 (1.66-2.15)	1.62 (1.36-1.78)	4.57 (3.25-5.91)	13.5 (10.6-19.0)	22.9 (16.7-36.7)	1258
	13-14	1.69 (1.46-1.96)	1.30 (1.19-1.50)	3.37 (2.92-4.31)	12.0 (8.42-17.4)	22.3 (13.8-36.5)	1312
Females	11-12	1.49 (1.20-1.84)	1.21 (.997-1.52)	3.51 (2.67-5.12)	12.9 (8.54-16.4)	21.1 (17.7-24.6)	1234
	13-14	1.36 (1.23-1.51)	.989 (.882-1.13)	3.00 (2.30-3.82)	11.0 (9.19-15.1)	20.9 (16.5-27.4)	1328
Race/ethnicity							
Mexican Americans	11-12	1.27 (.962-1.68)	1.15 (.805-1.46)	2.92 (1.79-4.58)	7.97 (4.82-13.3)	14.2 (7.97-20.2)	317
	13-14	.960 (.884-1.04)	.823 (.726-.929)	1.83 (1.44-1.99)	4.12 (2.75-7.50)	9.47 (5.22-15.7)	450
Non-Hispanic blacks	11-12	2.14 (1.85-2.47)	1.78 (1.51-2.01)	5.17 (3.73-6.71)	14.9 (11.2-19.5)	22.8 (16.8-42.9)	664
	13-14	2.44 (1.97-3.01)	1.75 (1.51-2.31)	6.40 (4.54-9.08)	19.2 (11.5-23.4)	30.8 (22.7-36.5)	577
Non-Hispanic whites	11-12	1.70 (1.53-1.90)	1.47 (1.28-1.65)	4.20 (3.15-5.43)	13.6 (10.9-17.4)	22.4 (17.7-33.4)	814
	13-14	1.58 (1.36-1.84)	1.16 (1.00-1.33)	3.36 (2.99-4.16)	13.1 (9.55-17.9)	25.6 (18.0-36.9)	973
All Hispanics	11-12	1.35 (1.12-1.64)	1.13 (.896-1.41)	3.17 (2.39-4.46)	9.30 (6.34-11.6)	16.1 (11.3-20.9)	573
	13-14	1.02 (.922-1.13)	.864 (.784-.940)	1.88 (1.69-2.14)	5.22 (3.21-7.86)	10.6 (6.62-13.1)	696
Asians	11-12	1.29 (1.01-1.66)	1.16 (.885-1.50)	3.00 (2.02-4.61)	8.61 (5.33-11.5)	15.5 (10.6-21.9)	352
	13-14	1.11 (.884-1.40)	.859 (.737-1.01)	1.91 (1.29-3.71)	7.99 (3.48-19.5)	19.5 (6.51-38.6)	290

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.044 and 0.06, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynaphthalene (1-Naphthol) (creatinine corrected) (2003 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	2.52 (2.28-2.79)	2.10 (1.87-2.40)	6.56 (5.43-8.18)	15.1 (13.5-17.4)	21.8 (18.2-25.4)	2595
	05-06	2.56 (2.29-2.86)	1.79 (1.57-2.06)	7.57 (5.89-9.40)	24.7 (20.4-31.0)	39.6 (34.1-53.0)	2385
	07-08	2.59 (2.19-3.06)	1.98 (1.67-2.40)	6.25 (4.69-8.22)	16.1 (13.6-18.8)	25.3 (20.9-32.8)	2496
	09-10	2.14 (1.99-2.32)	1.69 (1.59-1.86)	4.68 (4.21-5.52)	13.5 (12.3-14.9)	21.2 (19.0-22.9)	2747
Age group							
6-11 years	03-04	1.63 (1.43-1.86)	1.36 (1.18-1.74)	2.77 (2.27-3.20)	5.70 (3.99-8.95)	10.2 (5.70-16.4)	340
	05-06	1.30 (1.09-1.55)	1.09 (.938-1.33)	2.21 (1.99-2.81)	6.15 (3.33-10.3)	10.3 (6.82-28.0)	336
	07-08	1.87 (1.57-2.24)	1.67 (1.35-2.15)	3.31 (2.61-4.65)	7.37 (5.13-8.83)	9.99 (8.06-11.3)	370
	09-10	1.53 (1.35-1.73)	1.39 (1.17-1.63)	2.66 (2.36-2.95)	5.58 (4.36-7.62)	9.32 (5.73-17.2)	416
12-19 years	03-04	1.47 (1.26-1.71)	1.20 (1.02-1.39)	2.84 (2.49-4.08)	7.56 (5.47-9.12)	10.8 (9.12-13.4)	727
	05-06	1.29 (1.14-1.45)	.995 (.854-1.10)	2.70 (2.27-3.35)	8.76 (5.83-10.8)	12.5 (9.37-19.6)	655
	07-08	1.39 (1.18-1.65)	1.13 (.833-1.58)	3.21 (2.02-3.63)	6.95 (4.79-8.41)	9.93 (7.84-11.9)	386
	09-10	1.28 (1.03-1.60)	.992 (.735-1.36)	2.54 (1.87-3.77)	7.54 (4.63-9.68)	10.5 (7.54-17.5)	420
20 years and older	03-04	2.90 (2.59-3.25)	2.52 (2.12-3.06)	8.21 (6.45-9.81)	16.9 (14.4-19.8)	24.2 (20.0-27.2)	1528
	05-06	3.08 (2.72-3.50)	2.32 (1.91-2.73)	10.1 (7.67-13.9)	29.8 (23.9-34.1)	46.4 (39.1-57.3)	1394
	07-08	2.96 (2.43-3.60)	2.36 (1.89-2.78)	7.42 (5.75-10.2)	18.5 (14.9-22.6)	27.9 (22.3-45.0)	1740
	09-10	2.41 (2.21-2.63)	1.92 (1.71-2.10)	5.83 (4.84-6.84)	15.4 (13.5-16.7)	22.7 (20.2-27.0)	1911
Gender							
Males	03-04	2.49 (2.25-2.75)	2.14 (1.86-2.59)	6.56 (5.50-8.01)	13.5 (12.3-14.4)	18.3 (16.6-20.7)	1243
	05-06	2.38 (2.11-2.68)	1.89 (1.59-2.21)	6.45 (4.94-9.21)	19.2 (16.1-22.4)	31.7 (22.1-38.4)	1197
	07-08	2.48 (2.21-2.77)	2.07 (1.74-2.39)	6.17 (5.07-7.52)	13.8 (11.9-16.0)	20.7 (16.7-24.0)	1239
	09-10	2.07 (1.82-2.35)	1.67 (1.48-1.94)	5.07 (3.82-6.48)	12.6 (10.4-14.9)	18.6 (15.3-21.9)	1399
Females	03-04	2.56 (2.22-2.95)	2.04 (1.73-2.44)	6.68 (5.00-8.85)	17.5 (13.5-21.7)	24.7 (19.8-30.6)	1352
	05-06	2.75 (2.37-3.19)	1.75 (1.47-2.06)	8.05 (6.08-11.8)	31.5 (24.7-39.5)	54.2 (40.8-64.5)	1188
	07-08	2.71 (2.13-3.43)	1.94 (1.58-2.50)	6.31 (4.29-9.32)	18.9 (13.8-23.7)	32.8 (22.3-104)	1257
	09-10	2.22 (1.95-2.53)	1.71 (1.59-1.89)	4.54 (3.89-5.49)	15.4 (10.8-19.6)	24.7 (18.6-31.1)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynaphthalene (1-Naphthol) (creatinine corrected) (2003 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	03-04	1.75 (1.59-1.93)	1.50 (1.26-1.69)	3.24 (2.90-4.25)	8.55 (7.15-12.0)	17.5 (13.5-21.4)	651
	05-06	1.37 (1.15-1.64)	1.08 (.940-1.38)	2.83 (2.13-3.82)	9.50 (5.95-12.6)	18.8 (12.0-21.6)	607
	07-08	1.59 (1.29-1.95)	1.29 (1.03-1.57)	3.09 (2.17-5.05)	7.58 (5.43-10.8)	11.8 (7.86-26.1)	506
	09-10	1.70 (1.46-1.98)	1.41 (1.24-1.61)	3.38 (2.48-4.56)	7.83 (6.02-11.6)	15.7 (10.9-19.3)	566
Non-Hispanic blacks	03-04	2.36 (2.03-2.76)	2.00 (1.59-2.41)	5.90 (4.44-6.81)	13.8 (9.01-18.7)	20.9 (17.1-30.3)	677
	05-06	2.40 (1.99-2.89)	1.98 (1.52-2.51)	7.17 (5.28-8.85)	20.6 (15.4-29.2)	39.2 (29.2-54.3)	641
	07-08	2.22 (1.87-2.64)	1.87 (1.47-2.42)	6.06 (4.34-7.94)	13.6 (10.6-17.0)	21.3 (14.1-31.8)	574
	09-10	2.22 (1.96-2.52)	2.13 (1.64-2.52)	5.89 (4.70-7.22)	13.0 (10.3-14.9)	18.2 (14.5-28.9)	517
Non-Hispanic whites	03-04	2.75 (2.45-3.08)	2.33 (1.94-2.87)	8.03 (6.32-9.26)	16.6 (14.4-18.9)	23.5 (20.3-26.0)	1074
	05-06	2.84 (2.41-3.36)	1.99 (1.60-2.54)	8.65 (5.95-12.6)	28.2 (20.8-35.0)	43.1 (38.4-59.0)	952
	07-08	2.90 (2.33-3.61)	2.16 (1.71-2.78)	7.30 (5.00-10.2)	18.4 (14.8-22.3)	27.3 (22.3-50.8)	1022
	09-10	2.25 (2.05-2.48)	1.74 (1.59-1.92)	4.84 (4.08-5.98)	14.6 (12.8-16.9)	22.5 (19.1-27.1)	1203

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 1-Hydroxynapthalene (1-Naphthol) (creatinine corrected) (2011 – 2014)

Metabolite of Napthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	1.90 (1.73-2.10)	1.51 (1.35-1.67)	4.15 (3.49-5.23)	13.4 (10.4-15.6)	20.4 (15.8-26.7)	2490
	13-14	1.76 (1.61-1.93)	1.28 (1.20-1.35)	3.42 (2.94-4.02)	11.5 (9.43-14.2)	20.8 (18.3-23.9)	2639
Age group							
6-11 years	11-12	1.38 (1.18-1.61)	1.21 (.971-1.58)	2.36 (1.96-2.83)	4.78 (3.72-6.59)	8.90 (5.68-10.0)	396
	13-14	1.20 (1.07-1.34)	1.00 (.892-1.21)	1.83 (1.56-2.28)	3.40 (2.46-5.64)	6.63 (4.14-9.10)	399
12-19 years	11-12	1.12 (.927-1.35)	.936 (.729-1.21)	2.02 (1.43-3.03)	5.22 (3.42-7.72)	8.11 (5.61-17.2)	389
	13-14	.964 (.859-1.08)	.792 (.642-.926)	1.32 (1.12-1.72)	4.46 (2.85-7.92)	8.98 (4.46-19.0)	449
20 years and older	11-12	2.14 (1.93-2.36)	1.69 (1.49-1.87)	5.35 (4.44-6.53)	15.3 (13.0-17.5)	22.4 (16.4-38.0)	1705
	13-14	2.00 (1.82-2.21)	1.45 (1.33-1.57)	4.31 (3.68-5.10)	13.6 (10.9-16.6)	23.9 (19.3-26.8)	1791
Gender							
Males	11-12	1.77 (1.53-2.05)	1.43 (1.16-1.69)	3.80 (2.92-5.93)	12.2 (9.34-14.7)	18.8 (14.2-25.5)	1257
	13-14	1.70 (1.46-1.98)	1.23 (1.07-1.37)	3.36 (2.63-4.21)	10.5 (7.22-16.0)	19.9 (13.5-25.0)	1311
Females	11-12	2.04 (1.68-2.47)	1.62 (1.30-1.90)	4.42 (3.31-6.05)	15.3 (12.4-18.0)	21.6 (18.0-30.0)	1233
	13-14	1.82 (1.66-2.00)	1.33 (1.23-1.41)	3.59 (2.65-4.57)	13.0 (10.2-15.4)	22.7 (18.6-26.6)	1328
Race/ethnicity							
Mexican Americans	11-12	1.43 (1.14-1.80)	1.18 (.841-1.71)	3.03 (1.94-4.75)	7.88 (5.68-10.6)	11.8 (8.45-18.9)	317
	13-14	1.10 (.989-1.22)	.927 (.823-1.06)	1.82 (1.52-2.28)	4.38 (3.41-5.85)	8.82 (5.13-13.0)	450
Non-Hispanic blacks	11-12	1.66 (1.46-1.90)	1.29 (1.11-1.47)	4.01 (3.05-5.22)	10.5 (8.56-12.7)	16.4 (12.2-25.5)	664
	13-14	1.86 (1.58-2.19)	1.35 (1.12-1.76)	4.86 (3.53-6.19)	12.3 (10.2-14.4)	17.1 (14.0-19.3)	577
Non-Hispanic whites	11-12	2.07 (1.87-2.30)	1.66 (1.47-1.81)	4.97 (3.58-6.10)	15.0 (12.7-17.5)	22.4 (15.8-39.3)	812
	13-14	1.96 (1.71-2.24)	1.38 (1.26-1.56)	3.87 (3.02-5.20)	13.8 (9.28-18.8)	23.9 (19.0-31.0)	972
All Hispanics	11-12	1.51 (1.27-1.81)	1.21 (.961-1.59)	3.35 (2.33-4.61)	9.08 (6.82-11.3)	15.1 (10.7-20.1)	573
	13-14	1.14 (1.02-1.28)	.948 (.878-1.05)	1.75 (1.52-2.20)	4.83 (3.41-7.65)	9.16 (5.97-15.2)	696
Asians	11-12	1.73 (1.37-2.20)	1.31 (1.00-1.72)	3.74 (2.64-4.72)	8.92 (6.47-14.1)	22.8 (9.03-56.6)	352
	13-14	1.74 (1.40-2.18)	1.27 (1.02-1.63)	3.62 (2.09-5.47)	7.95 (5.10-24.2)	24.2 (7.39-37.0)	290

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Napthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynaphthalene (2-Naphthol) (2001 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.47 (2.11-2.89)	2.28 (1.93-2.67)	5.68 (4.58-6.83)	14.7 (12.8-19.5)	26.0 (22.5-29.7)	2748
	03-04	3.18 (2.76-3.67)	2.96 (2.50-3.50)	7.50 (6.19-9.69)	17.3 (14.5-22.1)	25.8 (22.6-27.7)	2575
	05-06	3.63 (3.36-3.92)	3.44 (3.11-3.80)	8.55 (7.84-9.42)	20.2 (17.0-24.1)	33.1 (28.6-38.2)	2446
	07-08	3.83 (3.37-4.36)	3.66 (3.24-4.12)	8.44 (6.67-10.3)	17.3 (14.8-21.9)	26.7 (23.0-30.8)	2531
	09-10	3.55 (3.23-3.91)	3.49 (3.15-3.85)	7.81 (7.07-8.55)	15.8 (14.0-17.6)	23.8 (21.5-26.9)	2747
Age group 6-11 years	01-02	1.69 (1.56-1.84)	1.70 (1.40-1.95)	3.01 (2.58-3.47)	5.41 (3.89-6.70)	7.72 (6.30-9.54)	387
	03-04	2.11 (1.80-2.47)	2.14 (1.79-2.59)	3.57 (3.14-4.38)	5.58 (5.05-6.38)	9.71 (5.23-20.0)	339
	05-06	2.16 (1.94-2.41)	2.09 (1.95-2.33)	3.96 (3.09-4.46)	5.64 (5.00-9.68)	10.6 (7.21-13.3)	345
	07-08	2.70 (2.38-3.06)	2.59 (2.13-2.95)	4.66 (4.05-5.23)	8.73 (5.91-10.7)	11.5 (9.16-14.8)	376
	09-10	2.40 (2.04-2.83)	2.49 (2.12-3.02)	4.89 (3.80-6.27)	9.61 (7.65-11.6)	12.8 (10.4-22.2)	416
12-19 years	01-02	2.22 (1.70-2.90)	2.15 (1.74-2.53)	4.39 (3.15-6.11)	11.0 (6.99-20.4)	22.5 (13.9-28.4)	735
	03-04	3.04 (2.68-3.46)	2.91 (2.51-3.50)	5.29 (4.67-6.59)	12.4 (8.53-16.8)	17.6 (15.1-25.9)	721
	05-06	3.46 (3.04-3.95)	3.30 (2.87-3.78)	6.75 (5.87-7.49)	14.5 (10.3-20.8)	23.9 (14.7-33.1)	677
	07-08	4.29 (3.49-5.28)	4.34 (3.73-5.32)	8.74 (6.57-10.8)	17.1 (13.0-22.5)	24.0 (19.6-29.7)	387
	09-10	3.93 (3.25-4.75)	3.98 (3.37-5.26)	7.76 (6.63-9.35)	12.8 (10.7-16.0)	19.8 (13.4-22.1)	420
20 years and older	01-02	2.62 (2.22-3.10)	2.44 (1.94-2.95)	6.38 (5.11-8.11)	17.6 (14.0-21.1)	28.1 (23.3-33.7)	1626
	03-04	3.37 (2.86-3.96)	3.18 (2.59-3.96)	8.77 (7.21-11.3)	19.2 (16.0-23.2)	26.6 (23.4-28.8)	1515
	05-06	3.88 (3.51-4.29)	3.77 (3.25-4.33)	9.58 (8.77-10.6)	23.0 (18.6-28.8)	37.0 (29.2-39.5)	1424
	07-08	3.91 (3.41-4.50)	3.68 (3.20-4.32)	9.17 (6.82-11.0)	18.5 (15.1-23.6)	28.6 (23.8-33.5)	1768
	09-10	3.66 (3.27-4.08)	3.54 (3.14-4.00)	8.17 (7.41-9.09)	17.4 (15.0-19.7)	25.6 (22.1-32.1)	1911
Gender Males	01-02	2.75 (2.36-3.22)	2.51 (2.09-2.97)	6.06 (4.82-7.81)	16.9 (11.9-23.0)	28.1 (20.8-35.6)	1349
	03-04	3.52 (3.09-4.01)	3.37 (2.91-3.88)	8.52 (6.96-10.5)	18.4 (15.3-22.6)	26.1 (22.2-27.9)	1233
	05-06	4.03 (3.65-4.44)	3.85 (3.25-4.34)	9.49 (7.84-11.3)	19.7 (16.7-23.1)	32.9 (25.5-38.2)	1221
	07-08	4.25 (3.77-4.78)	4.20 (3.74-4.52)	9.30 (7.35-10.8)	17.5 (14.5-22.7)	26.0 (20.9-32.6)	1256
	09-10	3.72 (3.30-4.20)	3.52 (3.14-4.12)	7.43 (6.76-8.41)	15.5 (13.7-18.0)	25.2 (21.0-27.2)	1399
Females	01-02	2.22 (1.86-2.66)	2.06 (1.65-2.48)	5.24 (3.89-6.44)	13.9 (12.3-17.7)	25.3 (19.7-28.3)	1399
	03-04	2.89 (2.42-3.45)	2.60 (2.14-3.16)	6.80 (5.14-9.21)	16.6 (12.7-21.3)	23.9 (22.1-27.6)	1342
	05-06	3.28 (2.83-3.80)	3.18 (2.64-3.61)	7.83 (6.77-9.00)	21.3 (14.5-29.2)	35.0 (26.7-39.6)	1225
	07-08	3.47 (2.99-4.03)	3.18 (2.65-3.74)	7.64 (5.97-10.0)	17.1 (13.6-21.9)	26.7 (21.6-30.8)	1275
	09-10	3.40 (3.09-3.74)	3.44 (3.07-3.82)	8.14 (7.12-9.07)	16.3 (13.6-18.6)	23.7 (20.8-30.7)	1348

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.002, 0.031, 0.013, 0.042, and 0.042 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynaphthalene (2-Naphthol) (2001 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	2.70 (2.36-3.08)	2.71 (2.35-3.26)	5.14 (4.36-6.15)	9.64 (8.15-10.6)	14.3 (10.4-18.7)	665
	03-04	3.13 (2.71-3.63)	3.11 (2.57-3.85)	6.74 (5.60-8.28)	14.5 (10.4-15.6)	18.0 (15.5-20.5)	648
	05-06	4.52 (4.12-4.96)	4.79 (4.13-5.43)	8.96 (7.84-9.81)	17.3 (12.4-23.3)	28.7 (20.0-32.7)	621
	07-08	4.69 (4.07-5.41)	4.50 (3.93-5.58)	8.60 (6.77-11.3)	16.4 (12.6-20.9)	24.0 (19.1-29.7)	515
	09-10	4.47 (3.90-5.13)	4.56 (3.72-5.88)	9.63 (8.51-10.7)	16.6 (13.4-19.5)	23.6 (18.7-28.4)	566
Non-Hispanic blacks	01-02	3.97 (3.47-4.54)	3.46 (3.10-4.02)	9.29 (6.82-13.2)	22.8 (16.0-29.1)	33.0 (25.9-38.7)	692
	03-04	4.69 (3.81-5.77)	4.23 (3.18-5.54)	10.3 (7.67-13.1)	21.5 (17.4-26.1)	30.7 (23.0-40.6)	673
	05-06	4.99 (4.41-5.65)	4.63 (3.93-5.62)	11.6 (9.37-14.3)	22.6 (20.0-26.9)	31.9 (27.6-38.5)	657
	07-08	4.90 (4.42-5.44)	4.81 (4.33-5.19)	10.1 (8.05-12.3)	22.1 (17.2-26.3)	28.6 (25.0-36.6)	587
	09-10	5.23 (4.45-6.16)	5.42 (4.51-6.80)	11.1 (9.18-13.3)	22.1 (17.9-26.0)	30.9 (26.0-35.1)	517
Non-Hispanic whites	01-02	2.19 (1.76-2.72)	1.91 (1.61-2.42)	4.97 (3.71-6.78)	14.1 (10.7-20.2)	25.9 (20.7-30.0)	1207
	03-04	3.07 (2.57-3.66)	2.65 (2.19-3.43)	7.61 (5.77-10.3)	18.5 (14.5-23.2)	26.3 (23.2-28.7)	1062
	05-06	3.25 (2.90-3.64)	2.98 (2.71-3.33)	7.90 (6.69-9.36)	19.3 (15.8-24.7)	34.0 (25.5-38.3)	980
	07-08	3.60 (2.98-4.35)	3.34 (2.61-4.17)	8.04 (5.73-10.7)	17.1 (11.8-23.8)	26.4 (20.4-35.6)	1044
	09-10	3.17 (2.79-3.62)	3.12 (2.81-3.51)	6.75 (6.06-7.81)	14.1 (12.3-17.6)	22.3 (19.7-26.5)	1203

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.002, 0.031, 0.013, 0.042, and 0.042 respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynapthalene (2-Naphthol) (2011 – 2014)

Metabolite of Napthalene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.14 (3.73-4.61)	4.18 (3.83-4.76)	9.74 (8.22-10.8)	19.7 (17.7-21.2)	28.1 (24.1-30.3)	2492
	13-14	4.22 (3.95-4.50)	4.11 (3.67-4.61)	9.80 (9.33-10.4)	19.7 (17.9-21.6)	30.0 (28.7-31.1)	2641
Age group							
6-11 years	11-12	3.13 (2.66-3.69)	3.34 (2.75-4.53)	6.49 (5.77-8.10)	11.9 (11.1-16.5)	20.3 (14.8-26.5)	397
	13-14	3.03 (2.57-3.59)	2.97 (2.51-3.62)	5.94 (4.76-7.58)	12.9 (9.34-16.2)	18.6 (13.3-29.0)	399
12-19 years	11-12	4.33 (3.47-5.40)	4.03 (3.18-5.36)	9.34 (7.14-11.7)	20.8 (14.7-26.6)	27.3 (20.8-61.5)	389
	13-14	5.09 (4.17-6.23)	5.41 (3.76-7.43)	10.6 (8.67-13.8)	20.6 (15.7-26.2)	28.6 (23.0-31.4)	449
20 years and older	11-12	4.25 (3.78-4.77)	4.26 (3.84-4.96)	10.4 (8.45-11.4)	20.0 (17.7-22.2)	28.5 (23.6-31.2)	1706
	13-14	4.24 (3.92-4.59)	4.18 (3.56-4.80)	9.98 (9.40-10.9)	20.2 (18.4-22.6)	30.3 (28.8-33.3)	1793
Gender							
Males	11-12	4.26 (3.82-4.76)	4.20 (3.62-5.09)	8.93 (7.61-10.7)	18.3 (14.7-22.4)	27.7 (21.0-32.9)	1258
	13-14	4.14 (3.71-4.61)	4.05 (3.37-4.74)	9.11 (8.45-10.2)	17.5 (15.3-22.0)	28.5 (22.2-32.8)	1310
Females	11-12	4.03 (3.50-4.65)	4.16 (3.72-4.83)	10.4 (8.56-11.9)	20.5 (17.8-23.0)	28.3 (24.1-31.2)	1234
	13-14	4.29 (3.96-4.65)	4.22 (3.81-4.73)	10.7 (9.71-12.1)	21.1 (19.0-24.2)	30.3 (27.6-35.2)	1331
Race/ethnicity							
Mexican Americans	11-12	5.86 (5.13-6.70)	5.41 (4.82-6.55)	12.7 (9.57-16.6)	22.5 (17.5-25.1)	27.5 (22.7-37.3)	317
	13-14	5.36 (4.74-6.06)	5.43 (4.58-6.22)	11.0 (9.07-13.2)	17.5 (13.9-28.4)	28.4 (16.5-46.4)	449
Non-Hispanic blacks	11-12	6.65 (5.66-7.80)	6.87 (5.70-8.56)	14.0 (11.8-15.1)	23.6 (20.3-28.4)	37.0 (25.4-47.1)	664
	13-14	7.53 (6.60-8.60)	7.74 (6.54-8.76)	14.9 (13.0-17.8)	25.7 (20.7-31.5)	34.5 (30.0-48.0)	576
Non-Hispanic whites	11-12	3.54 (3.17-3.96)	3.59 (3.09-4.06)	7.55 (6.80-9.06)	17.8 (13.4-20.5)	26.2 (20.5-29.2)	814
	13-14	3.68 (3.33-4.06)	3.39 (2.85-3.94)	9.07 (8.05-9.94)	18.6 (16.9-23.0)	30.0 (26.8-31.4)	975
All Hispanics	11-12	5.69 (4.90-6.61)	5.49 (4.60-6.61)	12.6 (10.1-15.7)	22.8 (18.4-24.7)	27.9 (23.0-42.3)	573
	13-14	5.42 (4.89-6.00)	5.44 (4.87-6.07)	11.1 (9.40-12.7)	19.4 (14.7-27.6)	28.5 (19.8-38.7)	695
Asians	11-12	2.91 (2.37-3.56)	2.97 (2.06-3.86)	6.33 (5.29-8.33)	13.5 (10.8-17.0)	20.6 (14.2-26.6)	352
	13-14	2.60 (2.02-3.34)	2.24 (1.83-2.86)	4.90 (3.48-8.26)	12.5 (6.39-25.3)	20.2 (11.7-34.4)	291

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.042 and 0.09, respectively.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Napthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynaphthalene (2-Naphthol) (creatinine corrected) (2001 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	2.31 (1.98-2.68)	1.94 (1.67-2.30)	4.73 (3.82-5.86)	11.5 (9.98-13.1)	16.7 (14.1-19.2)	2748
	03-04	2.99 (2.67-3.34)	2.56 (2.20-2.97)	6.34 (5.01-7.87)	14.1 (11.8-16.3)	19.9 (16.0-23.8)	2575
	05-06	3.52 (3.29-3.77)	3.08 (2.67-3.40)	7.24 (6.45-8.27)	17.0 (14.8-18.8)	23.9 (21.9-27.2)	2446
	07-08	3.86 (3.44-4.33)	3.44 (3.04-3.91)	7.08 (6.01-8.63)	15.3 (12.9-18.3)	20.7 (18.8-23.9)	2531
	09-10	3.71 (3.47-3.97)	3.33 (3.08-3.70)	6.69 (6.29-7.15)	13.8 (12.7-15.0)	19.9 (17.8-21.7)	2747
Age group 6-11 years	01-02	1.89 (1.74-2.07)	1.83 (1.72-1.94)	3.11 (2.51-3.47)	5.04 (4.38-5.54)	6.49 (5.27-12.4)	387
	03-04	2.24 (1.89-2.65)	2.04 (1.66-2.44)	3.54 (2.85-3.91)	5.95 (4.14-8.51)	8.72 (7.56-12.0)	339
	05-06	2.40 (2.10-2.75)	2.27 (2.00-2.58)	3.68 (3.15-4.43)	6.10 (4.84-7.04)	7.82 (6.31-13.8)	345
	07-08	3.33 (2.98-3.73)	3.35 (2.90-3.71)	5.23 (4.32-6.78)	8.00 (6.79-9.92)	10.5 (8.00-14.5)	376
	09-10	3.13 (2.73-3.60)	3.08 (2.54-3.60)	5.01 (4.19-6.23)	9.79 (7.04-12.5)	13.8 (10.9-18.9)	416
12-19 years	01-02	1.72 (1.35-2.19)	1.51 (1.34-1.83)	2.75 (2.08-4.07)	7.18 (4.07-10.9)	11.1 (7.86-17.4)	735
	03-04	2.28 (2.06-2.52)	2.03 (1.77-2.35)	3.78 (3.20-4.47)	7.84 (6.13-9.11)	10.5 (9.10-12.5)	721
	05-06	2.59 (2.37-2.84)	2.31 (2.03-2.62)	4.58 (3.99-5.02)	8.47 (6.98-10.5)	11.9 (10.1-15.2)	677
	07-08	3.30 (2.74-3.96)	3.13 (2.43-4.08)	5.73 (4.88-6.79)	9.85 (7.56-12.0)	12.5 (9.91-18.6)	387
	09-10	3.16 (2.79-3.58)	3.00 (2.58-3.67)	5.43 (4.70-6.35)	8.73 (7.59-9.98)	12.5 (9.61-14.2)	420
20 years and older	01-02	2.48 (2.13-2.89)	2.08 (1.68-2.60)	5.63 (4.46-6.94)	12.4 (10.9-13.9)	17.7 (15.2-20.6)	1626
	03-04	3.23 (2.87-3.64)	2.91 (2.36-3.41)	7.54 (6.20-9.10)	15.6 (13.1-17.9)	21.8 (17.2-24.0)	1515
	05-06	3.87 (3.59-4.17)	3.40 (3.08-3.75)	9.20 (7.93-10.5)	19.0 (17.4-21.3)	27.2 (22.3-29.7)	1424
	07-08	4.02 (3.55-4.55)	3.47 (3.07-4.04)	7.75 (6.17-9.83)	17.5 (13.9-19.8)	22.7 (20.2-25.5)	1768
	09-10	3.87 (3.57-4.20)	3.47 (3.18-3.87)	7.26 (6.69-7.99)	14.9 (13.3-16.8)	21.2 (19.2-22.8)	1911
Gender Males	01-02	2.23 (1.90-2.61)	1.86 (1.63-2.10)	4.79 (3.51-6.12)	11.4 (8.95-14.3)	15.8 (13.1-19.2)	1349
	03-04	2.77 (2.50-3.06)	2.36 (2.13-2.81)	6.31 (5.08-7.36)	12.8 (11.3-14.6)	16.4 (14.6-18.3)	1233
	05-06	3.23 (3.00-3.48)	2.83 (2.53-3.14)	6.75 (5.62-8.10)	13.8 (12.3-16.2)	18.9 (17.4-21.3)	1221
	07-08	3.58 (3.24-3.95)	3.13 (2.70-3.57)	6.79 (5.79-8.10)	14.4 (12.2-17.2)	19.6 (18.3-20.9)	1256
	09-10	3.34 (3.04-3.67)	2.92 (2.54-3.37)	6.19 (5.44-6.84)	13.2 (11.1-15.4)	18.1 (14.9-21.7)	1399
Females	01-02	2.38 (2.05-2.77)	1.99 (1.66-2.56)	4.73 (3.79-6.00)	11.5 (10.3-12.8)	17.4 (13.7-21.5)	1399
	03-04	3.21 (2.76-3.73)	2.68 (2.20-3.26)	6.43 (4.74-8.58)	16.0 (11.5-19.9)	22.5 (18.1-25.0)	1342
	05-06	3.83 (3.39-4.33)	3.21 (2.72-3.76)	8.08 (6.43-9.74)	20.8 (17.0-24.7)	29.0 (24.9-34.2)	1225
	07-08	4.15 (3.57-4.83)	3.59 (3.19-4.18)	7.40 (5.88-9.63)	16.8 (12.9-20.2)	22.7 (20.0-25.5)	1275
	09-10	4.10 (3.80-4.41)	3.89 (3.52-4.16)	7.17 (6.54-8.06)	14.6 (13.0-16.8)	21.7 (19.2-23.9)	1348

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Naphthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynaphthalene (2-Naphthol) (creatinine corrected) (2001 – 2010)

Metabolite of Naphthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Race/ethnicity							
Mexican Americans	01-02	2.52 (2.23-2.85)	2.35 (2.01-2.95)	4.65 (3.97-5.21)	7.32 (6.05-8.09)	12.1 (7.82-15.3)	665
	03-04	2.83 (2.44-3.28)	2.57 (2.20-3.23)	5.00 (4.10-5.95)	10.3 (6.79-13.0)	13.3 (11.0-15.5)	648
	05-06	4.05 (3.77-4.35)	4.03 (3.65-4.36)	7.05 (6.30-8.05)	12.6 (9.53-15.1)	17.4 (13.4-20.6)	621
	07-08	4.58 (3.97-5.28)	4.38 (3.55-5.02)	7.59 (6.30-9.38)	14.2 (11.6-16.4)	19.1 (16.0-24.7)	515
	09-10	4.44 (4.02-4.90)	4.30 (3.79-5.03)	7.80 (7.28-8.47)	12.9 (11.1-14.6)	18.8 (13.8-22.8)	566
Non-Hispanic blacks	01-02	2.79 (2.39-3.27)	2.41 (2.04-2.77)	5.98 (4.84-6.98)	11.6 (9.09-15.3)	17.4 (12.2-23.4)	692
	03-04	3.31 (2.70-4.04)	3.06 (2.31-3.86)	6.92 (5.12-9.33)	12.8 (10.4-16.5)	18.6 (15.7-22.1)	673
	05-06	3.51 (3.16-3.89)	3.10 (2.59-3.53)	6.71 (5.33-8.04)	12.3 (10.3-16.1)	19.7 (16.1-25.0)	657
	07-08	3.80 (3.47-4.15)	3.45 (3.08-3.90)	6.73 (5.57-8.41)	13.1 (11.3-14.9)	19.2 (14.8-26.5)	587
	09-10	3.80 (3.47-4.15)	3.37 (3.10-3.85)	7.27 (6.54-8.32)	13.4 (10.8-16.8)	18.7 (13.4-23.5)	517
Non-Hispanic whites	01-02	2.16 (1.78-2.62)	1.74 (1.44-2.18)	4.34 (3.32-6.09)	11.9 (9.93-14.3)	16.9 (13.8-20.6)	1207
	03-04	3.03 (2.65-3.46)	2.46 (2.10-2.98)	7.14 (5.09-8.91)	15.6 (13.3-17.6)	21.9 (17.1-24.1)	1062
	05-06	3.40 (3.08-3.77)	2.73 (2.39-3.26)	7.45 (6.10-9.65)	17.9 (15.3-20.7)	24.9 (21.3-29.0)	980
	07-08	3.75 (3.18-4.43)	3.28 (2.60-4.08)	6.91 (5.53-9.51)	16.8 (12.8-19.8)	22.2 (19.4-25.5)	1044
	09-10	3.57 (3.27-3.90)	3.18 (2.82-3.71)	6.27 (5.67-7.13)	14.8 (13.1-15.8)	20.8 (19.0-22.5)	1203

Biomonitoring Summary

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Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 2-Hydroxynapthalene (2-Naphthol) (creatinine corrected) (2011 – 2014)

Metabolite of Napthalene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.72 (4.39-5.08)	4.32 (4.00-4.78)	9.30 (8.40-10.1)	17.6 (15.5-18.7)	23.4 (20.2-25.9)	2490
	13-14	4.90 (4.67-5.13)	4.77 (4.40-5.09)	9.43 (9.01-9.81)	16.1 (15.1-17.5)	22.0 (19.9-24.3)	2640
Age group							
6-11 years	11-12	4.50 (3.93-5.16)	4.18 (3.68-4.96)	7.81 (6.44-9.37)	14.6 (11.2-17.1)	19.2 (15.3-22.6)	396
	13-14	4.55 (3.93-5.27)	4.19 (3.34-5.20)	7.50 (6.01-9.56)	11.9 (9.89-15.9)	18.7 (12.8-25.2)	399
12-19 years	11-12	4.19 (3.61-4.86)	3.82 (3.26-4.63)	6.97 (5.26-8.92)	12.9 (9.70-14.9)	20.5 (12.9-32.1)	389
	13-14	4.62 (4.14-5.15)	4.45 (3.73-5.55)	8.20 (6.52-9.59)	13.0 (11.0-16.8)	17.3 (13.6-22.8)	449
20 years and older	11-12	4.84 (4.48-5.22)	4.50 (4.07-4.98)	9.88 (9.07-11.0)	18.1 (16.4-19.4)	24.0 (20.8-26.7)	1705
	13-14	4.98 (4.69-5.28)	4.91 (4.32-5.32)	9.86 (9.28-10.5)	17.1 (15.8-18.4)	22.6 (20.6-25.3)	1792
Gender							
Males	11-12	4.01 (3.61-4.44)	3.71 (3.23-4.19)	7.61 (6.50-8.89)	14.2 (12.1-15.8)	19.6 (17.4-22.3)	1257
	13-14	4.16 (3.83-4.51)	3.88 (3.56-4.32)	7.90 (6.98-8.43)	13.8 (11.6-16.5)	19.1 (15.1-24.3)	1309
Females	11-12	5.53 (5.01-6.11)	5.22 (4.62-5.94)	11.4 (9.85-12.8)	19.1 (17.4-22.6)	25.9 (21.6-31.0)	1233
	13-14	5.74 (5.39-6.11)	5.77 (5.29-6.28)	10.8 (9.79-12.3)	18.4 (16.6-19.9)	23.2 (21.5-26.1)	1331
Race/ethnicity							
Mexican Americans	11-12	6.59 (5.61-7.75)	6.22 (5.54-7.60)	11.6 (9.38-14.3)	20.1 (14.3-26.3)	26.3 (18.5-44.9)	317
	13-14	6.17 (5.65-6.73)	5.97 (5.49-6.58)	10.1 (9.08-11.3)	17.0 (13.4-22.8)	23.9 (17.0-35.2)	449
Non-Hispanic blacks	11-12	5.17 (4.58-5.85)	5.26 (4.59-6.16)	9.33 (8.09-10.7)	15.3 (13.5-17.3)	19.6 (17.9-22.0)	664
	13-14	5.75 (5.29-6.24)	5.55 (4.99-6.43)	9.68 (8.83-10.8)	14.9 (13.9-16.1)	19.1 (15.8-24.2)	576
Non-Hispanic whites	11-12	4.32 (3.96-4.70)	3.81 (3.40-4.21)	8.89 (7.40-10.0)	17.6 (14.5-18.7)	21.9 (18.7-27.7)	812
	13-14	4.56 (4.27-4.87)	4.16 (3.83-4.70)	9.14 (8.21-9.86)	16.8 (14.5-18.4)	21.7 (19.1-25.3)	974
All Hispanics	11-12	6.37 (5.80-7.00)	6.04 (5.65-6.77)	11.6 (9.85-13.3)	19.2 (15.8-23.8)	25.9 (21.9-30.4)	573
	13-14	6.08 (5.58-6.63)	6.02 (5.53-6.35)	10.5 (9.28-11.6)	17.6 (13.8-22.8)	23.9 (18.8-28.3)	695
Asians	11-12	3.89 (3.22-4.71)	3.91 (3.08-4.86)	6.94 (5.70-8.22)	12.9 (8.67-19.0)	19.1 (13.7-23.1)	352
	13-14	4.07 (3.33-4.98)	3.90 (2.92-5.16)	7.94 (6.18-9.44)	13.4 (9.87-19.3)	20.5 (12.8-27.4)	291

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Napthalene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/PAHs_FactSheet.html

Urinary 3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2569
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1756
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1287
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1282
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	439
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	681
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.79.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2568
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	374
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1755
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1286
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1282
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	439
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	944
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	681
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	1.19 (.670-1.76)	3.11 (2.27-3.95)	2569
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	1.51 (<LOD-3.95)	439
20 years and older	13-14	*	< LOD	< LOD	1.56 (1.03-2.06)	3.51 (2.67-4.41)	1755
Gender							
Males	13-14	*	< LOD	< LOD	1.39 (.880-2.00)	3.78 (2.66-4.50)	1286
Females	13-14	*	< LOD	< LOD	.970 (.370-1.74)	2.43 (1.74-3.61)	1283
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	.520 (<LOD-1.47)	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	2.84 (1.83-4.02)	4.62 (3.63-6.39)	554
Non-Hispanic whites	13-14	*	< LOD	< LOD	1.37 (.580-2.04)	3.41 (2.02-4.44)	944
All Hispanics	13-14	*	< LOD	< LOD	.330 (<LOD-.870)	.980 (.490-2.04)	683
Asians	13-14	*	< LOD	< LOD	< LOD	.820 (<LOD-2.09)	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.33.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA- α -C) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	1.64 (1.28-2.24)	3.36 (2.44-4.97)	2568
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	1.28 (<LOD-3.27)	439
20 years and older	13-14	*	< LOD	< LOD	2.04 (1.44-2.56)	4.27 (2.87-5.26)	1754
Gender							
Males	13-14	*	< LOD	< LOD	1.61 (1.15-2.30)	3.92 (2.30-5.26)	1285
Females	13-14	*	< LOD	< LOD	1.77 (1.35-2.09)	3.20 (2.42-4.59)	1283
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	1.28 (<LOD-2.83)	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	2.43 (1.49-3.03)	4.84 (2.86-6.20)	554
Non-Hispanic whites	13-14	*	< LOD	< LOD	1.98 (1.35-2.56)	4.27 (2.55-5.88)	943
All Hispanics	13-14	*	< LOD	< LOD	.885 (<LOD-1.21)	1.66 (1.05-2.87)	683
Asians	13-14	*	< LOD	< LOD	< LOD	1.78 (<LOD-2.09)	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	.460 (.390-.530)	1.88 (1.53-2.30)	7.10 (5.89-8.63)	15.8 (13.9-18.9)	2569
Age group							
6-11 years	13-14	*	< LOD	.810 (.530-1.33)	2.45 (1.39-3.99)	5.00 (2.45-6.12)	375
12-19 years	13-14	.775 (.673-.892)	.610 (.390-.800)	1.53 (1.10-2.16)	4.90 (3.75-7.77)	11.5 (7.69-20.8)	438
20 years and older	13-14	*	.470 (.400-.550)	2.12 (1.64-2.74)	7.97 (6.58-10.5)	17.3 (14.3-20.8)	1756
Gender							
Males	13-14	*	.530 (.460-.620)	2.08 (1.61-2.69)	7.89 (5.68-11.3)	17.3 (11.3-25.2)	1285
Females	13-14	*	.380 (<LOD-.490)	1.70 (1.30-2.10)	6.78 (4.89-8.55)	14.3 (9.67-20.8)	1284
Race/ethnicity							
Mexican Americans	13-14	.976 (.807-1.18)	.670 (.510-.860)	2.69 (1.70-3.83)	8.71 (6.21-10.4)	14.2 (8.76-35.0)	440
Non-Hispanic blacks	13-14	.993 (.890-1.11)	.750 (.630-.930)	2.31 (1.90-2.91)	6.60 (5.10-8.49)	17.4 (9.87-20.8)	554
Non-Hispanic whites	13-14	*	.390 (<LOD-.450)	1.61 (1.14-2.30)	6.90 (4.94-9.77)	16.8 (12.9-20.7)	945
All Hispanics	13-14	.967 (.815-1.15)	.650 (.520-.850)	2.61 (1.78-3.55)	8.66 (7.10-10.3)	14.6 (10.6-19.2)	683
Asians	13-14	*	< LOD	.980 (.560-1.44)	4.72 (2.58-7.91)	13.4 (6.07-15.5)	284

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.34.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	.706 (.653-.750)	2.02 (1.76-2.39)	8.07 (6.58-9.66)	15.4 (12.2-18.5)	2568
Age group							
6-11 years	13-14	*	< LOD	1.33 (.942-1.76)	3.84 (2.00-7.13)	7.55 (4.20-13.7)	375
12-19 years	13-14	.709 (.592-.850)	.574 (.437-.755)	1.22 (.984-2.00)	4.71 (2.84-6.52)	10.6 (5.12-13.6)	438
20 years and older	13-14	*	.727 (.676-.777)	2.21 (1.91-2.69)	9.20 (7.78-10.6)	16.0 (13.1-19.9)	1755
Gender							
Males	13-14	*	.667 (.595-.709)	2.00 (1.71-2.59)	7.55 (5.51-10.8)	13.5 (10.1-18.5)	1284
Females	13-14	*	.739 (<LOD-.841)	2.04 (1.73-2.40)	8.49 (6.52-10.6)	16.0 (12.4-25.1)	1284
Race/ethnicity							
Mexican Americans	13-14	1.13 (.980-1.29)	.881 (.750-1.01)	2.93 (2.04-3.97)	11.1 (5.15-12.9)	13.9 (11.5-23.4)	440
Non-Hispanic blacks	13-14	.776 (.690-.873)	.677 (.571-.796)	1.76 (1.44-2.05)	4.74 (3.32-6.28)	8.59 (6.29-11.7)	554
Non-Hispanic whites	13-14	*	.686 (<LOD-.774)	1.91 (1.67-2.64)	8.36 (6.56-10.1)	15.9 (12.9-22.1)	944
All Hispanics	13-14	1.09 (.962-1.23)	.800 (.698-.919)	2.84 (2.04-3.55)	10.2 (6.25-12.4)	16.0 (12.4-20.1)	683
Asians	13-14	*	< LOD	1.59 (1.09-2.59)	6.07 (3.64-10.1)	13.7 (7.51-24.7)	284

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-9H-pyrido[2,3-b]indole (A-α-C) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	.630 (<LOD-.720)	2.30 (1.65-3.39)	23.9 (16.9-32.9)	58.2 (46.0-73.9)	2568
Age group							
6-11 years	13-14	*	< LOD	.850 (.720-.930)	1.43 (1.13-1.83)	2.07 (1.54-3.12)	375
12-19 years	13-14	*	< LOD	1.21 (.960-1.39)	4.18 (2.27-19.9)	27.9 (3.43-58.2)	438
20 years and older	13-14	*	.680 (<LOD-.790)	3.72 (2.24-5.30)	29.1 (20.3-42.1)	65.2 (51.8-79.7)	1755
Gender							
Males	13-14	*	.740 (<LOD-.840)	2.91 (1.97-4.44)	26.3 (17.8-36.8)	61.4 (48.0-77.9)	1285
Females	13-14	*	< LOD	1.73 (1.28-2.95)	20.1 (12.0-34.8)	54.5 (32.3-73.6)	1283
Race/ethnicity							
Mexican Americans	13-14	*	.620 (<LOD-.720)	1.43 (1.13-1.73)	5.01 (3.02-7.90)	18.5 (5.45-31.0)	440
Non-Hispanic blacks	13-14	*	.760 (.620-.970)	6.63 (3.38-10.8)	49.1 (30.7-73.1)	79.8 (62.8-97.2)	554
Non-Hispanic whites	13-14	*	.620 (<LOD-.760)	2.69 (1.59-4.44)	27.4 (15.0-47.5)	60.5 (47.6-83.1)	943
All Hispanics	13-14	*	.630 (<LOD-.720)	1.63 (1.16-2.36)	7.63 (3.55-20.9)	23.9 (10.9-40.4)	683
Asians	13-14	*	< LOD	.980 (.760-1.34)	2.96 (1.36-16.1)	16.1 (2.96-36.8)	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.62.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-9H-pyrido[2,3-b]indole (A-α-C) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	1.00 (<LOD-1.16)	2.88 (2.32-4.00)	26.6 (17.0-35.8)	63.3 (43.0-81.3)	2567
Age group							
6-11 years	13-14	*	< LOD	1.53 (1.33-1.76)	2.44 (2.10-2.93)	3.21 (2.59-4.00)	375
12-19 years	13-14	*	< LOD	1.33 (1.07-1.55)	5.35 (1.89-14.5)	20.9 (5.10-66.8)	438
20 years and older	13-14	*	1.12 (<LOD-1.29)	4.00 (2.88-5.51)	32.7 (23.0-43.3)	69.3 (49.7-92.3)	1754
Gender							
Males	13-14	*	.912 (<LOD-1.02)	3.06 (2.31-4.05)	26.6 (17.0-34.2)	57.1 (37.2-81.7)	1284
Females	13-14	*	< LOD	2.71 (2.13-4.00)	28.3 (14.4-43.1)	67.1 (39.1-91.2)	1283
Race/ethnicity							
Mexican Americans	13-14	*	.957 (<LOD-1.07)	1.73 (1.48-1.97)	5.47 (3.67-6.86)	14.9 (5.57-49.8)	440
Non-Hispanic blacks	13-14	*	.772 (.638-.929)	4.00 (2.18-7.83)	35.8 (24.6-49.7)	65.7 (45.7-82.8)	554
Non-Hispanic whites	13-14	*	1.10 (<LOD-1.29)	3.51 (2.46-4.89)	30.2 (17.0-49.7)	74.8 (43.9-102)	942
All Hispanics	13-14	*	.945 (<LOD-1.10)	1.84 (1.57-2.67)	6.50 (3.74-17.8)	28.1 (9.99-61.6)	683
Asians	13-14	*	< LOD	1.85 (1.57-2.44)	6.29 (2.48-19.0)	19.0 (5.27-43.6)	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-3-methyl-3H-imidazo[4,5-f]quinolone (IQ) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2572
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1758
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1287
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	946
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.37.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-3-methyl-3H-imidazo[4,5-f]quinolone (IQ) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1757
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1286
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P-1) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2572
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1758
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1287
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	946
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.31.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P-1) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1757
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1286
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Aminodipyrido[1,2-a:3',2'-d] imidazole (GLU-P-2) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2572
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1758
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1287
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	946
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.83.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Aminodipyrido[1,2-a:3',2'-d] imidazole (GLU-P-2) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1757
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1286
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1285
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary Harman (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	139 (129-151)	125 (115-141)	253 (230-279)	553 (508-603)	863 (762-957)	2571
Age group							
6-11 years	13-14	131 (115-150)	124 (104-142)	229 (178-266)	437 (371-511)	660 (511-768)	375
12-19 years	13-14	140 (114-173)	144 (99.2-180)	231 (206-288)	471 (352-711)	850 (497-1540)	439
20 years and older	13-14	140 (130-150)	124 (115-138)	263 (235-291)	562 (535-637)	893 (759-1080)	1757
Gender							
Males	13-14	143 (129-159)	132 (116-149)	251 (215-304)	553 (405-648)	863 (727-1040)	1287
Females	13-14	135 (123-149)	119 (107-138)	256 (223-295)	553 (500-663)	870 (749-1100)	1284
Race/ethnicity							
Mexican Americans	13-14	85.6 (74.7-98.1)	80.1 (66.2-91.4)	135 (114-168)	259 (185-484)	555 (310-939)	440
Non-Hispanic blacks	13-14	165 (143-191)	168 (143-196)	307 (244-374)	577 (443-691)	762 (618-900)	555
Non-Hispanic whites	13-14	150 (132-170)	138 (115-159)	270 (236-316)	598 (538-727)	956 (768-1370)	945
All Hispanics	13-14	91.4 (82.6-101)	84.0 (77.1-94.5)	155 (135-174)	296 (236-367)	522 (354-861)	683
Asians	13-14	145 (126-165)	122 (107-138)	283 (230-395)	666 (488-1040)	1110 (608-1570)	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 4.59.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Urinary Harman (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	164 (155-174)	146 (132-160)	289 (276-306)	614 (574-671)	1030 (870-1110)	2570
Age group							
6-11 years	13-14	204 (187-223)	191 (173-211)	310 (255-387)	715 (451-814)	826 (720-1030)	375
12-19 years	13-14	128 (115-143)	118 (100-129)	172 (153-215)	375 (275-504)	685 (436-1280)	439
20 years and older	13-14	166 (157-177)	150 (132-167)	304 (285-327)	646 (580-713)	1090 (880-1220)	1756
Gender							
Males	13-14	145 (134-157)	129 (112-149)	253 (233-276)	543 (459-614)	850 (714-1020)	1286
Females	13-14	186 (170-202)	163 (143-191)	330 (293-375)	713 (595-826)	1140 (866-1280)	1284
Race/ethnicity							
Mexican Americans	13-14	98.6 (87.3-111)	85.8 (79.3-94.6)	154 (130-181)	322 (230-405)	535 (328-833)	440
Non-Hispanic blacks	13-14	129 (116-143)	123 (103-138)	238 (191-286)	416 (348-473)	557 (439-659)	555
Non-Hispanic whites	13-14	188 (174-204)	164 (151-185)	330 (294-373)	720 (627-836)	1160 (880-1320)	944
All Hispanics	13-14	103 (95.8-110)	90.6 (86.3-99.1)	159 (146-176)	322 (269-362)	540 (369-740)	683
Asians	13-14	230 (206-257)	218 (179-236)	444 (323-503)	861 (678-1270)	1600 (1010-2030)	285

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Urinary 1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2) (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2571
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1757
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1287
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1284
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.63.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2) (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	2570
Age group							
6-11 years	13-14	*	< LOD	< LOD	< LOD	< LOD	375
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	439
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	1756
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1286
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1284
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	440
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	555
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	944
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	683
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	285

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary Norharman (2013 – 2014)

Geometric mean and selected percentiles of concentrations (in ng/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	333 (317-351)	332 (315-354)	628 (586-673)	1080 (1000-1190)	1470 (1290-1700)	2552
Age group							
6-11 years	13-14	332 (294-374)	334 (289-398)	646 (490-730)	959 (854-1120)	1190 (980-1360)	374
12-19 years	13-14	324 (279-377)	335 (264-442)	603 (509-693)	905 (770-987)	1080 (907-1460)	439
20 years and older	13-14	335 (318-353)	329 (311-351)	630 (581-701)	1120 (1030-1280)	1500 (1350-1720)	1739
Gender							
Males	13-14	367 (342-394)	367 (335-403)	662 (599-753)	1140 (1010-1310)	1630 (1290-1820)	1277
Females	13-14	303 (282-325)	295 (271-333)	601 (544-655)	1030 (874-1140)	1400 (1130-1530)	1275
Race/ethnicity							
Mexican Americans	13-14	283 (255-313)	287 (246-326)	510 (424-639)	1050 (816-1240)	1330 (1130-1520)	437
Non-Hispanic blacks	13-14	370 (322-426)	379 (318-457)	666 (568-777)	1010 (890-1080)	1240 (1040-1580)	554
Non-Hispanic whites	13-14	349 (322-377)	345 (315-377)	650 (589-739)	1120 (1000-1270)	1490 (1280-1720)	931
All Hispanics	13-14	279 (260-299)	287 (265-308)	529 (471-592)	993 (867-1110)	1320 (1140-1470)	679
Asians	13-14	253 (224-285)	243 (200-288)	466 (409-566)	983 (732-1280)	1470 (1010-1780)	285

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 12.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Urinary Norharman (creatinine corrected) (2013 – 2014)

Geometric mean and selected percentiles of urine concentrations (in ng/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	394 (377-412)	382 (359-400)	676 (632-727)	1130 (1020-1220)	1500 (1350-1690)	2551
Age group							
6-11 years	13-14	516 (486-549)	488 (442-529)	820 (713-976)	1350 (1200-1430)	1500 (1350-1950)	374
12-19 years	13-14	297 (276-319)	286 (265-315)	462 (389-533)	695 (583-809)	879 (720-1300)	439
20 years and older	13-14	400 (376-424)	388 (358-413)	714 (648-768)	1150 (1030-1250)	1580 (1330-1910)	1738
Gender							
Males	13-14	372 (354-391)	361 (333-397)	628 (572-678)	1040 (918-1230)	1370 (1170-1690)	1276
Females	13-14	417 (393-442)	398 (375-426)	727 (648-800)	1170 (1080-1280)	1590 (1350-1980)	1275
Race/ethnicity							
Mexican Americans	13-14	326 (291-365)	312 (272-336)	561 (427-675)	1060 (806-1360)	1570 (976-2350)	437
Non-Hispanic blacks	13-14	289 (263-318)	294 (237-355)	471 (420-513)	743 (617-852)	937 (860-1040)	554
Non-Hispanic whites	13-14	441 (421-462)	423 (400-453)	756 (713-816)	1180 (1070-1280)	1550 (1350-1910)	930
All Hispanics	13-14	314 (290-340)	301 (267-326)	534 (447-629)	993 (861-1200)	1410 (1150-1800)	679
Asians	13-14	402 (359-449)	388 (332-429)	707 (600-787)	1190 (991-1460)	1680 (1230-2710)	285

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Blood 1,1,1-Trichloroethane (Methyl chloroform) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1345
	05-06	*	< LOD	< LOD	< LOD	< LOD	3085
	07-08	*	< LOD	< LOD	< LOD	< LOD	2907
	09-10	*	< LOD	< LOD	< LOD	< LOD	3333
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	911
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
	09-10	*	< LOD	< LOD	< LOD	< LOD	570
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1345
	05-06	*	< LOD	< LOD	< LOD	< LOD	1524
	07-08	*	< LOD	< LOD	< LOD	< LOD	1565
	09-10	*	< LOD	< LOD	< LOD	< LOD	1831
60 years and older	05-06	*	< LOD	< LOD	< LOD	.014 (<LOD-.021)	650
	07-08	*	< LOD	< LOD	< LOD	< LOD	873
	09-10	*	< LOD	< LOD	< LOD	< LOD	932
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	660
	05-06	*	< LOD	< LOD	< LOD	< LOD	1464
	07-08	*	< LOD	< LOD	< LOD	< LOD	1442
	09-10	*	< LOD	< LOD	< LOD	< LOD	1644
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	685
	05-06	*	< LOD	< LOD	< LOD	< LOD	1621
	07-08	*	< LOD	< LOD	< LOD	< LOD	1465
	09-10	*	< LOD	< LOD	< LOD	< LOD	1689
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	762
	07-08	*	< LOD	< LOD	< LOD	< LOD	575
	09-10	*	< LOD	< LOD	< LOD	< LOD	675
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	289
	05-06	*	< LOD	< LOD	< LOD	< LOD	791
	07-08	*	< LOD	< LOD	< LOD	< LOD	581
	09-10	*	< LOD	< LOD	< LOD	< LOD	591
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	688
	05-06	*	< LOD	< LOD	< LOD	< LOD	1303
	07-08	*	< LOD	< LOD	< LOD	< LOD	1291
	09-10	*	< LOD	< LOD	< LOD	< LOD	1499

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.048, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1,1-Trichloroethane (Methyl chloroform) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2662
	13-14	*	< LOD	< LOD	< LOD	< LOD	3204
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	500
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2162
	13-14	*	< LOD	< LOD	< LOD	< LOD	2605
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1323
	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1339
	13-14	*	< LOD	< LOD	< LOD	< LOD	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	292
	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	718
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	880
	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	575
	13-14	*	< LOD	< LOD	< LOD	< LOD	810
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	409
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.01 and 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1,1,2-Tetrachloroethane (2007 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2750
	09-10	*	< LOD	< LOD	< LOD	< LOD	3280
Age group							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	452
	09-10	*	< LOD	< LOD	< LOD	< LOD	551
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1493
	09-10	*	< LOD	< LOD	< LOD	< LOD	1801
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	805
	09-10	*	< LOD	< LOD	< LOD	< LOD	928
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1365
	09-10	*	< LOD	< LOD	< LOD	< LOD	1617
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1385
	09-10	*	< LOD	< LOD	< LOD	< LOD	1663
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	556
	09-10	*	< LOD	< LOD	< LOD	< LOD	644
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	546
	09-10	*	< LOD	< LOD	< LOD	< LOD	583
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1197
	09-10	*	< LOD	< LOD	< LOD	< LOD	1505

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.04 and 0.04, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,1,1,2-Tetrachloroethane (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2789
	13-14	*	< LOD	< LOD	< LOD	< LOD	3148
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	525
	13-14	*	< LOD	< LOD	< LOD	< LOD	591
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2264
	13-14	*	< LOD	< LOD	< LOD	< LOD	2557
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1396
	13-14	*	< LOD	< LOD	< LOD	< LOD	1512
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1393
	13-14	*	< LOD	< LOD	< LOD	< LOD	1636
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
	13-14	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	740
	13-14	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	954
	13-14	*	< LOD	< LOD	< LOD	< LOD	1274
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	598
	13-14	*	< LOD	< LOD	< LOD	< LOD	802
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	413
	13-14	*	< LOD	< LOD	< LOD	< LOD	360

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.04 and 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,1,2,2-Tetrachloroethane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1235
	05-06	*	< LOD	< LOD	< LOD	< LOD	3131
	07-08	*	< LOD	< LOD	< LOD	< LOD	2922
	09-10	*	< LOD	< LOD	< LOD	< LOD	3371
Age group 12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	464
	09-10	*	< LOD	< LOD	< LOD	< LOD	579
	20-59 years	*	< LOD	< LOD	< LOD	< LOD	1235
	05-06	*	< LOD	< LOD	< LOD	< LOD	1542
	07-08	*	< LOD	< LOD	< LOD	< LOD	1575
	09-10	*	< LOD	< LOD	< LOD	< LOD	1849
	60 years and older	*	< LOD	< LOD	< LOD	< LOD	665
	05-06	*	< LOD	< LOD	< LOD	< LOD	883
	07-08	*	< LOD	< LOD	< LOD	< LOD	943
	09-10	*	< LOD	< LOD	< LOD	< LOD	943
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	613
	05-06	*	< LOD	< LOD	< LOD	< LOD	1484
	07-08	*	< LOD	< LOD	< LOD	< LOD	1447
	09-10	*	< LOD	< LOD	< LOD	< LOD	1664
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	622
	05-06	*	< LOD	< LOD	< LOD	< LOD	1647
	07-08	*	< LOD	< LOD	< LOD	< LOD	1475
	09-10	*	< LOD	< LOD	< LOD	< LOD	1707
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	250
	05-06	*	< LOD	< LOD	< LOD	< LOD	753
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
	09-10	*	< LOD	< LOD	< LOD	< LOD	681
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	282
	05-06	*	< LOD	< LOD	< LOD	< LOD	823
	07-08	*	< LOD	< LOD	< LOD	< LOD	594
	09-10	*	< LOD	< LOD	< LOD	< LOD	597
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	606
	05-06	*	< LOD	< LOD	< LOD	< LOD	1323
	07-08	*	< LOD	< LOD	< LOD	< LOD	1310
	09-10	*	< LOD	< LOD	< LOD	< LOD	1527

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1,2,2-Tetrachloroethane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2681
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	505
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2176
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1346
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1335
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	282
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	720
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	913
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	569
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	396

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1,2-Trichloroethane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1354
	05-06	*	< LOD	< LOD	< LOD	< LOD	3165
	07-08	*	< LOD	< LOD	< LOD	< LOD	2701
	09-10	*	< LOD	< LOD	< LOD	< LOD	3240
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	936
	07-08	*	< LOD	< LOD	< LOD	< LOD	436
	09-10	*	< LOD	< LOD	< LOD	< LOD	556
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1354
	05-06	*	< LOD	< LOD	< LOD	< LOD	1556
	07-08	*	< LOD	< LOD	< LOD	< LOD	1458
	09-10	*	< LOD	< LOD	< LOD	< LOD	1779
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	673
	07-08	*	< LOD	< LOD	< LOD	< LOD	807
	09-10	*	< LOD	< LOD	< LOD	< LOD	905
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	664
	05-06	*	< LOD	< LOD	< LOD	< LOD	1499
	07-08	*	< LOD	< LOD	< LOD	< LOD	1338
	09-10	*	< LOD	< LOD	< LOD	< LOD	1600
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	690
	05-06	*	< LOD	< LOD	< LOD	< LOD	1666
	07-08	*	< LOD	< LOD	< LOD	< LOD	1363
	09-10	*	< LOD	< LOD	< LOD	< LOD	1640
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	777
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
	09-10	*	< LOD	< LOD	< LOD	< LOD	674
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	297
	05-06	*	< LOD	< LOD	< LOD	< LOD	824
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
	09-10	*	< LOD	< LOD	< LOD	< LOD	577
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	686
	05-06	*	< LOD	< LOD	< LOD	< LOD	1331
	07-08	*	< LOD	< LOD	< LOD	< LOD	1183
	09-10	*	< LOD	< LOD	< LOD	< LOD	1439

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1,2-Trichloroethane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2783
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	520
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2263
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1392
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1391
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	298
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	738
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	971
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	588
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	402

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,2,3-Trichloropropane (2007 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2592
	09-10	*	< LOD	< LOD	< LOD	< LOD	3260
Age group							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	413
	09-10	*	< LOD	< LOD	< LOD	< LOD	560
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1398
	09-10	*	< LOD	< LOD	< LOD	< LOD	1788
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	781
	09-10	*	< LOD	< LOD	< LOD	< LOD	912
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1284
	09-10	*	< LOD	< LOD	< LOD	< LOD	1606
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1308
	09-10	*	< LOD	< LOD	< LOD	< LOD	1654
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	518
	09-10	*	< LOD	< LOD	< LOD	< LOD	660
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	541
	09-10	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1133
	09-10	*	< LOD	< LOD	< LOD	< LOD	1484

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.04 and 0.04, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,2,3-Trichloropropane (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2761
	13-14	*	< LOD	< LOD	< LOD	< LOD	3177
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	520
	13-14	*	< LOD	< LOD	< LOD	< LOD	592
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2241
	13-14	*	< LOD	< LOD	< LOD	< LOD	2585
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1384
	13-14	*	< LOD	< LOD	< LOD	< LOD	1535
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1377
	13-14	*	< LOD	< LOD	< LOD	< LOD	1642
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
	13-14	*	< LOD	< LOD	< LOD	< LOD	494
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	737
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	938
	13-14	*	< LOD	< LOD	< LOD	< LOD	1297
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	589
	13-14	*	< LOD	< LOD	< LOD	< LOD	794
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	413
	13-14	*	< LOD	< LOD	< LOD	< LOD	362

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.04 and 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,1-Dichloroethane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	3193
	07-08	*	< LOD	< LOD	< LOD	< LOD	2800
	09-10	*	< LOD	< LOD	< LOD	< LOD	3330
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	941
	07-08	*	< LOD	< LOD	< LOD	< LOD	446
	09-10	*	< LOD	< LOD	< LOD	< LOD	567
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	1569
	07-08	*	< LOD	< LOD	< LOD	< LOD	1505
	09-10	*	< LOD	< LOD	< LOD	< LOD	1833
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	683
	07-08	*	< LOD	< LOD	< LOD	< LOD	849
	09-10	*	< LOD	< LOD	< LOD	< LOD	930
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	1510
	07-08	*	< LOD	< LOD	< LOD	< LOD	1380
	09-10	*	< LOD	< LOD	< LOD	< LOD	1647
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1683
	07-08	*	< LOD	< LOD	< LOD	< LOD	1420
	09-10	*	< LOD	< LOD	< LOD	< LOD	1683
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	778
	07-08	*	< LOD	< LOD	< LOD	< LOD	548
	09-10	*	< LOD	< LOD	< LOD	< LOD	680
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	832
	07-08	*	< LOD	< LOD	< LOD	< LOD	577
	09-10	*	< LOD	< LOD	< LOD	< LOD	590
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1347
	07-08	*	< LOD	< LOD	< LOD	< LOD	1239
	09-10	*	< LOD	< LOD	< LOD	< LOD	1489

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1-Dichloroethane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2736
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	507
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2229
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1367
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1369
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	299
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	734
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	928
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	597
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	398

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1-Dichloroethene (Vinylidene chloride) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	3163
	07-08	*	< LOD	< LOD	< LOD	< LOD	2810
	09-10	*	< LOD	< LOD	< LOD	< LOD	3133
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	931
	07-08	*	< LOD	< LOD	< LOD	< LOD	447
	09-10	*	< LOD	< LOD	< LOD	< LOD	540
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	1555
	07-08	*	< LOD	< LOD	< LOD	< LOD	1503
	09-10	*	< LOD	< LOD	< LOD	< LOD	1706
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	860
	09-10	*	< LOD	< LOD	< LOD	< LOD	887
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	1502
	07-08	*	< LOD	< LOD	< LOD	< LOD	1398
	09-10	*	< LOD	< LOD	< LOD	< LOD	1549
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1661
	07-08	*	< LOD	< LOD	< LOD	< LOD	1412
	09-10	*	< LOD	< LOD	< LOD	< LOD	1584
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	774
	07-08	*	< LOD	< LOD	< LOD	< LOD	525
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	823
	07-08	*	< LOD	< LOD	< LOD	< LOD	584
	09-10	*	< LOD	< LOD	< LOD	< LOD	569
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1332
	07-08	*	< LOD	< LOD	< LOD	< LOD	1255
	09-10	*	< LOD	< LOD	< LOD	< LOD	1374

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.009, 0.009, 0.009, and 0.009 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,1-Dichloroethene (Vinylidene chloride) (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2804
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	528
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2276
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1406
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1398
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	299
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	739
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	969
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	596
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	416

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.009.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,2-Dibromo-3-chloropropane (DBCP) (2003 – 2010)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	2998
	07-08	*	< LOD	< LOD	< LOD	< LOD	2837
	09-10	*	< LOD	< LOD	< LOD	< LOD	3391
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	875
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
	09-10	*	< LOD	< LOD	< LOD	< LOD	580
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1170
	05-06	*	< LOD	< LOD	< LOD	< LOD	1485
	07-08	*	< LOD	< LOD	< LOD	< LOD	1522
	09-10	*	< LOD	< LOD	< LOD	< LOD	1861
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	638
	07-08	*	< LOD	< LOD	< LOD	< LOD	846
	09-10	*	< LOD	< LOD	< LOD	< LOD	950
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	1409
	07-08	*	< LOD	< LOD	< LOD	< LOD	1397
	09-10	*	< LOD	< LOD	< LOD	< LOD	1673
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	602
	05-06	*	< LOD	< LOD	< LOD	< LOD	1589
	07-08	*	< LOD	< LOD	< LOD	< LOD	1440
	09-10	*	< LOD	< LOD	< LOD	< LOD	1718
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	234
	05-06	*	< LOD	< LOD	< LOD	< LOD	752
	07-08	*	< LOD	< LOD	< LOD	< LOD	565
	09-10	*	< LOD	< LOD	< LOD	< LOD	681
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	239
	05-06	*	< LOD	< LOD	< LOD	< LOD	737
	07-08	*	< LOD	< LOD	< LOD	< LOD	586
	09-10	*	< LOD	< LOD	< LOD	< LOD	602
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	603
	05-06	*	< LOD	< LOD	< LOD	< LOD	1287
	07-08	*	< LOD	< LOD	< LOD	< LOD	1231
	09-10	*	< LOD	< LOD	< LOD	< LOD	1536

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.1, and 0.1 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result. .

‡Not measured after Survey years 2009-2010.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/DBCP_BiomonitoringSummary.html

Blood 1,2-Dibromoethane (2007 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2577
	09-10	*	< LOD	< LOD	< LOD	< LOD	3212
Age group							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	409
	09-10	*	< LOD	< LOD	< LOD	< LOD	551
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1389
	09-10	*	< LOD	< LOD	< LOD	< LOD	1768
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	779
	09-10	*	< LOD	< LOD	< LOD	< LOD	893
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1270
	09-10	*	< LOD	< LOD	< LOD	< LOD	1582
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1307
	09-10	*	< LOD	< LOD	< LOD	< LOD	1630
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	471
	09-10	*	< LOD	< LOD	< LOD	< LOD	620
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	532
	09-10	*	< LOD	< LOD	< LOD	< LOD	579
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1165
	09-10	*	< LOD	< LOD	< LOD	< LOD	1465

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.015 and 0.015, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,2-Dibromoethane (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2788
	13-14	*	< LOD	< LOD	< LOD	< LOD	3203
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	523
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2265
	13-14	*	< LOD	< LOD	< LOD	< LOD	2604
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1400
	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1388
	13-14	*	< LOD	< LOD	< LOD	< LOD	1657
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	742
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	958
	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	589
	13-14	*	< LOD	< LOD	< LOD	< LOD	809
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	415
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.015 and 0.015.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,2-Dichlorobenzene (o-Dichlorobenzene) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1327
	05-06	*	< LOD	< LOD	< LOD	< LOD	3083
	07-08	*	< LOD	< LOD	< LOD	< LOD	2803
	09-10	*	< LOD	< LOD	< LOD	< LOD	3074
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	921
	07-08	*	< LOD	< LOD	< LOD	< LOD	455
	09-10	*	< LOD	< LOD	< LOD	< LOD	513
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1327
	05-06	*	< LOD	< LOD	< LOD	< LOD	1523
	07-08	*	< LOD	< LOD	< LOD	< LOD	1510
	09-10	*	< LOD	< LOD	< LOD	< LOD	1706
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	639
	07-08	*	< LOD	< LOD	< LOD	< LOD	838
	09-10	*	< LOD	< LOD	< LOD	< LOD	855
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	647
	05-06	*	< LOD	< LOD	< LOD	< LOD	1457
	07-08	*	< LOD	< LOD	< LOD	< LOD	1388
	09-10	*	< LOD	< LOD	< LOD	< LOD	1514
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	680
	05-06	*	< LOD	< LOD	< LOD	< LOD	1626
	07-08	*	< LOD	< LOD	< LOD	< LOD	1415
	09-10	*	< LOD	< LOD	< LOD	< LOD	1560
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	250
	05-06	*	< LOD	< LOD	< LOD	< LOD	766
	07-08	*	< LOD	< LOD	< LOD	< LOD	544
	09-10	*	< LOD	< LOD	< LOD	< LOD	623
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	291
	05-06	*	< LOD	< LOD	< LOD	< LOD	801
	07-08	*	< LOD	< LOD	< LOD	< LOD	579
	09-10	*	< LOD	< LOD	< LOD	< LOD	540
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	682
	05-06	*	< LOD	< LOD	< LOD	< LOD	1288
	07-08	*	< LOD	< LOD	< LOD	< LOD	1237
	09-10	*	< LOD	< LOD	< LOD	< LOD	1391

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.1, 0.1, 0.025, and 0.025 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,2-Dichlorobenzene (o-Dichlorobenzene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2697
	13-14	*	< LOD	< LOD	< LOD	< LOD	3146
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	502
	13-14	*	< LOD	< LOD	< LOD	< LOD	587
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2195
	13-14	*	< LOD	< LOD	< LOD	< LOD	2559
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1340
	13-14	*	< LOD	< LOD	< LOD	< LOD	1519
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1357
	13-14	*	< LOD	< LOD	< LOD	< LOD	1627
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	289
	13-14	*	< LOD	< LOD	< LOD	< LOD	486
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	687
	13-14	*	< LOD	< LOD	< LOD	< LOD	613
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	942
	13-14	*	< LOD	< LOD	< LOD	< LOD	1283
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	582
	13-14	*	< LOD	< LOD	< LOD	< LOD	784
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	404
	13-14	*	< LOD	< LOD	< LOD	< LOD	359

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.025 and 0.025.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,2-Dichloroethane (Ethylene dichloride) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1346
	05-06	*	< LOD	< LOD	< LOD	< LOD	3082
	07-08	*	< LOD	< LOD	< LOD	< LOD	2767
	09-10	*	< LOD	< LOD	< LOD	< LOD	3358
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	906
	07-08	*	< LOD	< LOD	< LOD	< LOD	443
	09-10	*	< LOD	< LOD	< LOD	< LOD	574
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1346
	05-06	*	< LOD	< LOD	< LOD	< LOD	1520
	07-08	*	< LOD	< LOD	< LOD	< LOD	1484
	09-10	*	< LOD	< LOD	< LOD	< LOD	1843
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	656
	07-08	*	< LOD	< LOD	< LOD	< LOD	840
	09-10	*	< LOD	< LOD	< LOD	< LOD	941
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	661
	05-06	*	< LOD	< LOD	< LOD	< LOD	1452
	07-08	*	< LOD	< LOD	< LOD	< LOD	1375
	09-10	*	< LOD	< LOD	< LOD	< LOD	1657
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	685
	05-06	*	< LOD	< LOD	< LOD	< LOD	1630
	07-08	*	< LOD	< LOD	< LOD	< LOD	1392
	09-10	*	< LOD	< LOD	< LOD	< LOD	1701
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	763
	07-08	*	< LOD	< LOD	< LOD	< LOD	533
	09-10	*	< LOD	< LOD	< LOD	< LOD	675
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	289
	05-06	*	< LOD	< LOD	< LOD	< LOD	795
	07-08	*	< LOD	< LOD	< LOD	< LOD	554
	09-10	*	< LOD	< LOD	< LOD	< LOD	594
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	689
	05-06	*	< LOD	< LOD	< LOD	< LOD	1297
	07-08	*	< LOD	< LOD	< LOD	< LOD	1244
	09-10	*	< LOD	< LOD	< LOD	< LOD	1521

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,2-Dichloroethane (Ethylene dichloride) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2784
	13-14	*	< LOD	< LOD	< LOD	< LOD	3203
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	522
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2262
	13-14	*	< LOD	< LOD	< LOD	< LOD	2604
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1394
	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1390
	13-14	*	< LOD	< LOD	< LOD	< LOD	1657
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
	13-14	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	737
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	953
	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	598
	13-14	*	< LOD	< LOD	< LOD	< LOD	809
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	412
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.01 and 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood cis-1,2-Dichloroethene (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3140
	07-08	*	< LOD	< LOD	< LOD	< LOD	2897
	09-10	*	< LOD	< LOD	< LOD	< LOD	3313
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	924
	07-08	*	< LOD	< LOD	< LOD	< LOD	463
	09-10	*	< LOD	< LOD	< LOD	< LOD	573
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1539
	07-08	*	< LOD	< LOD	< LOD	< LOD	1556
	09-10	*	< LOD	< LOD	< LOD	< LOD	1817
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	677
	07-08	*	< LOD	< LOD	< LOD	< LOD	878
	09-10	*	< LOD	< LOD	< LOD	< LOD	923
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	669
	05-06	*	< LOD	< LOD	< LOD	< LOD	1481
	07-08	*	< LOD	< LOD	< LOD	< LOD	1432
	09-10	*	< LOD	< LOD	< LOD	< LOD	1636
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1659
	07-08	*	< LOD	< LOD	< LOD	< LOD	1465
	09-10	*	< LOD	< LOD	< LOD	< LOD	1677
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	757
	07-08	*	< LOD	< LOD	< LOD	< LOD	576
	09-10	*	< LOD	< LOD	< LOD	< LOD	680
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	822
	07-08	*	< LOD	< LOD	< LOD	< LOD	591
	09-10	*	< LOD	< LOD	< LOD	< LOD	592
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1329
	07-08	*	< LOD	< LOD	< LOD	< LOD	1283
	09-10	*	< LOD	< LOD	< LOD	< LOD	1477

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood cis-1,2-Dichloroethene (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2754
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	515
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2239
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1374
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1380
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	297
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	721
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	945
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	592
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	413

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood trans-1,2-Dichloroethene (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	3193
	07-08	*	< LOD	< LOD	< LOD	< LOD	2843
	09-10	*	< LOD	< LOD	< LOD	< LOD	3241
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	941
	07-08	*	< LOD	< LOD	< LOD	< LOD	468
	09-10	*	< LOD	< LOD	< LOD	< LOD	559
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1367
	05-06	*	< LOD	< LOD	< LOD	< LOD	1569
	07-08	*	< LOD	< LOD	< LOD	< LOD	1524
	09-10	*	< LOD	< LOD	< LOD	< LOD	1782
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	683
	07-08	*	< LOD	< LOD	< LOD	< LOD	851
	09-10	*	< LOD	< LOD	< LOD	< LOD	900
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	670
	05-06	*	< LOD	< LOD	< LOD	< LOD	1511
	07-08	*	< LOD	< LOD	< LOD	< LOD	1415
	09-10	*	< LOD	< LOD	< LOD	< LOD	1605
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1682
	07-08	*	< LOD	< LOD	< LOD	< LOD	1428
	09-10	*	< LOD	< LOD	< LOD	< LOD	1636
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	779
	07-08	*	< LOD	< LOD	< LOD	< LOD	574
	09-10	*	< LOD	< LOD	< LOD	< LOD	678
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	832
	07-08	*	< LOD	< LOD	< LOD	< LOD	580
	09-10	*	< LOD	< LOD	< LOD	< LOD	584
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1346
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
	09-10	*	< LOD	< LOD	< LOD	< LOD	1431

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.01, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood trans-1,2-Dichloroethene (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2754
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	516
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2238
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1385
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1369
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	295
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	729
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	951
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	581
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	410

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,2-Dichloropropane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1364
	05-06	*	< LOD	< LOD	< LOD	< LOD	3120
	07-08	*	< LOD	< LOD	< LOD	< LOD	2840
	09-10	*	< LOD	< LOD	< LOD	< LOD	3255
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	918
	07-08	*	< LOD	< LOD	< LOD	< LOD	469
	09-10	*	< LOD	< LOD	< LOD	< LOD	558
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1364
	05-06	*	< LOD	< LOD	< LOD	< LOD	1536
	07-08	*	< LOD	< LOD	< LOD	< LOD	1524
	09-10	*	< LOD	< LOD	< LOD	< LOD	1795
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	666
	07-08	*	< LOD	< LOD	< LOD	< LOD	847
	09-10	*	< LOD	< LOD	< LOD	< LOD	902
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	667
	05-06	*	< LOD	< LOD	< LOD	< LOD	1478
	07-08	*	< LOD	< LOD	< LOD	< LOD	1413
	09-10	*	< LOD	< LOD	< LOD	< LOD	1604
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1642
	07-08	*	< LOD	< LOD	< LOD	< LOD	1427
	09-10	*	< LOD	< LOD	< LOD	< LOD	1651
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	755
	07-08	*	< LOD	< LOD	< LOD	< LOD	562
	09-10	*	< LOD	< LOD	< LOD	< LOD	643
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	811
	07-08	*	< LOD	< LOD	< LOD	< LOD	582
	09-10	*	< LOD	< LOD	< LOD	< LOD	591
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	692
	05-06	*	< LOD	< LOD	< LOD	< LOD	1322
	07-08	*	< LOD	< LOD	< LOD	< LOD	1245
	09-10	*	< LOD	< LOD	< LOD	< LOD	1478

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.008, 0.008, 0.01, and 0.01 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,2-Dichloropropane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2740
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	517
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2223
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1371
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1369
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	295
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	718
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	937
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	589
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	413

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood 1,3-Dichlorobenzene (m-Dichlorobenzene) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1334
	05-06	*	< LOD	< LOD	< LOD	< LOD	3148
	07-08	*	< LOD	< LOD	< LOD	< LOD	2484
	09-10	*	< LOD	< LOD	< LOD	< LOD	3294
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	928
	07-08	*	< LOD	< LOD	< LOD	< LOD	405
	09-10	*	< LOD	< LOD	< LOD	< LOD	570
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1334
	05-06	*	< LOD	< LOD	< LOD	< LOD	1545
	07-08	*	< LOD	< LOD	< LOD	< LOD	1345
	09-10	*	< LOD	< LOD	< LOD	< LOD	1808
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	675
	07-08	*	< LOD	< LOD	< LOD	< LOD	734
	09-10	*	< LOD	< LOD	< LOD	< LOD	916
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	659
	05-06	*	< LOD	< LOD	< LOD	< LOD	1491
	07-08	*	< LOD	< LOD	< LOD	< LOD	1217
	09-10	*	< LOD	< LOD	< LOD	< LOD	1623
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	675
	05-06	*	< LOD	< LOD	< LOD	< LOD	1657
	07-08	*	< LOD	< LOD	< LOD	< LOD	1267
	09-10	*	< LOD	< LOD	< LOD	< LOD	1671
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	774
	07-08	*	< LOD	< LOD	< LOD	< LOD	483
	09-10	*	< LOD	< LOD	< LOD	< LOD	671
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	279
	05-06	*	< LOD	< LOD	< LOD	< LOD	809
	07-08	*	< LOD	< LOD	< LOD	< LOD	534
	09-10	*	< LOD	< LOD	< LOD	< LOD	592
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	686
	05-06	*	< LOD	< LOD	< LOD	< LOD	1330
	07-08	*	< LOD	< LOD	< LOD	< LOD	1072
	09-10	*	< LOD	< LOD	< LOD	< LOD	1465

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.05, 0.05, 0.025, and 0.025 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,3-Dichlorobenzene (m-Dichlorobenzene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2743
	13-14	*	< LOD	< LOD	< LOD	< LOD	3175
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	510
	13-14	*	< LOD	< LOD	< LOD	< LOD	593
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2233
	13-14	*	< LOD	< LOD	< LOD	< LOD	2582
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1378
	13-14	*	< LOD	< LOD	< LOD	< LOD	1528
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1365
	13-14	*	< LOD	< LOD	< LOD	< LOD	1647
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	297
	13-14	*	< LOD	< LOD	< LOD	< LOD	502
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	698
	13-14	*	< LOD	< LOD	< LOD	< LOD	609
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	961
	13-14	*	< LOD	< LOD	< LOD	< LOD	1290
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	590
	13-14	*	< LOD	< LOD	< LOD	< LOD	805
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	411
	13-14	*	< LOD	< LOD	< LOD	< LOD	361

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.025 and 0.025.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,4-Dichlorobenzene (Paradichlorobenzene) (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	.300 (.190-.550)	1.19 (.610-2.90)	4.10 (1.40-7.60)	807
	03-04	*	< LOD	.320 (.250-.400)	1.10 (.710-1.60)	3.30 (1.70-5.10)	1322
	05-06	*	.085 (.085-.085)	.218 (.180-.260)	.917 (.643-1.31)	3.59 (1.80-5.50)	3126
	07-08	*	.054 (.043-.071)	.186 (.138-.262)	.869 (.543-1.35)	2.69 (1.52-7.13)	2330
	09-10	*	.043 (<LOD-.054)	.161 (.117-.213)	.609 (.433-.959)	2.13 (1.06-4.03)	3205
Age group							
12-19 years	05-06	*	.085 (.085-.085)	.220 (.160-.280)	.960 (.560-2.00)	4.27 (2.37-6.10)	926
	07-08	.118 (.089-.155)	.074 (.049-.109)	.244 (.147-.520)	1.11 (.743-2.10)	4.16 (1.18-20.1)	379
	09-10	*	.046 (<LOD-.066)	.196 (.125-.271)	.890 (.335-2.28)	2.33 (.884-7.79)	549
20-59 years	01-02	*	< LOD	.300 (.190-.550)	1.19 (.610-2.90)	4.10 (1.40-7.60)	807
	03-04	*	< LOD	.320 (.250-.400)	1.10 (.710-1.60)	3.30 (1.70-5.10)	1322
	05-06	*	.085 (.085-.085)	.220 (.170-.260)	.910 (.540-1.50)	3.77 (1.50-7.33)	1537
	07-08	*	.052 (<LOD-.071)	.184 (.121-.266)	.788 (.464-1.49)	2.67 (1.36-7.58)	1250
	09-10	*	.042 (<LOD-.058)	.153 (.103-.227)	.591 (.363-.999)	1.77 (.865-3.80)	1751
60 years and older	05-06	*	.085 (.085-.085)	.207 (.158-.313)	.877 (.525-1.80)	3.06 (1.50-4.20)	663
	07-08	*	.055 (<LOD-.072)	.169 (.120-.280)	.768 (.461-1.16)	2.28 (.936-7.84)	698
	09-10	*	.041 (<LOD-.051)	.153 (.107-.204)	.663 (.452-1.06)	3.48 (1.46-5.74)	905
Gender							
Males	01-02	*	< LOD	.270 (.180-.530)	.900 (.570-2.90)	3.60 (1.10-7.20)	390
	03-04	*	< LOD	.320 (.250-.380)	.770 (.580-1.20)	1.90 (1.20-4.00)	651
	05-06	*	.085 (.085-.085)	.230 (.188-.290)	.950 (.603-1.50)	3.50 (1.50-7.20)	1479
	07-08	.102 (.081-.126)	.065 (.052-.080)	.205 (.156-.274)	.833 (.497-1.33)	2.14 (1.05-8.40)	1133
	09-10	*	.048 (<LOD-.065)	.176 (.132-.248)	.610 (.470-.971)	2.33 (1.13-3.65)	1574
Females	01-02	*	< LOD	.360 (.190-.620)	1.20 (.620-3.90)	4.10 (1.68-8.30)	417
	03-04	*	< LOD	.350 (.220-.450)	1.40 (.810-2.10)	4.10 (2.20-5.90)	671
	05-06	*	.085 (.085-.085)	.180 (.140-.240)	.865 (.522-1.70)	3.59 (2.10-5.18)	1647
	07-08	*	.048 (<LOD-.065)	.155 (.108-.268)	.894 (.537-1.61)	3.11 (1.68-8.10)	1197
	09-10	*	< LOD	.142 (.102-.192)	.593 (.349-.992)	1.95 (.947-5.18)	1631
Race/ethnicity							
Mexican Americans	01-02	.331 (.246-.446)	.180 (<LOD-.260)	.790 (.400-1.30)	6.00 (1.30-16.0)	16.0 (6.20-33.0)	217
	03-04	.381 (.256-.566)	.210 (.140-.400)	.730 (.370-2.90)	6.20 (2.90-9.30)	10.0 (6.30-19.0)	262
	05-06	.412 (.309-.549)	.210 (.150-.290)	1.20 (.680-2.97)	8.80 (3.80-16.0)	16.0 (8.10-33.0)	772
	07-08	.251 (.119-.529)	.179 (.059-.420)	.864 (.304-4.30)	7.76 (2.14-17.8)	19.0 (10.5-23.4)	459
	09-10	*	.058 (<LOD-.156)	.267 (.110-1.58)	3.85 (.417-17.9)	13.6 (2.39-31.0)	647
Non-Hispanic blacks	01-02	.558 (.376-.827)	.360 (.260-.560)	1.80 (.710-3.90)	6.30 (1.40-29.0)	15.0 (3.60-51.0)	136
	03-04	.423 (.292-.613)	.340 (.200-.480)	.980 (.550-1.50)	4.10 (1.60-9.20)	11.0 (2.50-19.0)	297
	05-06	.381 (.272-.532)	.230 (.160-.330)	.860 (.500-1.70)	5.24 (2.00-11.5)	12.7 (8.41-21.0)	805
	07-08	.235 (.181-.303)	.151 (.112-.200)	.688 (.410-1.04)	3.76 (2.14-9.10)	12.7 (6.00-21.3)	502
	09-10	.211 (.147-.304)	.148 (.095-.200)	.540 (.349-1.12)	4.60 (1.64-11.5)	14.8 (4.94-23.3)	564
Non-Hispanic whites	01-02	*	< LOD	.200 (<LOD-.380)	.570 (.300-1.20)	1.19 (.570-3.70)	396
	03-04	*	< LOD	.200 (.160-.260)	.490 (.370-.720)	.940 (.690-2.00)	658
	05-06	*	.085 (.085-.085)	.134 (.085-.180)	.438 (.260-.670)	1.16 (.520-2.30)	1319
	07-08	*	.043 (<LOD-.055)	.095 (.081-.137)	.377 (.291-.486)	.898 (.543-1.49)	1015
	09-10	*	< LOD	.105 (.076-.162)	.363 (.253-.535)	.783 (.593-1.12)	1452

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.12, 0.12, 0.011, 0.04, and 0.04, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,4-Dichlorobenzene (Paradichlorobenzene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.143 (.097-.218)	.670 (.383-1.07)	2.13 (1.25-3.64)	2709
	13-14	*	< LOD	.074 (.054-.102)	.301 (.194-.488)	1.07 (.512-2.25)	3172
Age group							
12-19 years	11-12	*	< LOD	.144 (.070-.321)	.543 (.261-1.07)	1.49 (.670-6.56)	501
	13-14	*	< LOD	.084 (.054-.183)	.388 (.183-1.42)	1.44 (.363-5.89)	593
20 years and older	11-12	*	< LOD	.143 (.101-.217)	.745 (.376-1.07)	2.16 (1.36-3.62)	2208
	13-14	*	< LOD	.071 (.052-.098)	.292 (.188-.457)	.949 (.503-2.00)	2579
Gender							
Males	11-12	*	< LOD	.148 (.095-.237)	.571 (.366-.866)	1.48 (.882-2.41)	1355
	13-14	*	< LOD	.077 (.061-.092)	.331 (.197-.479)	.850 (.477-2.45)	1526
Females	11-12	*	< LOD	.139 (.095-.212)	.823 (.376-1.29)	3.49 (1.25-9.21)	1354
	13-14	*	< LOD	.072 (.045-.119)	.286 (.189-.524)	1.14 (.563-2.38)	1646
Race/ethnicity							
Mexican Americans	11-12	*	.045 (<LOD-.114)	.217 (.093-.387)	.870 (.416-2.41)	2.66 (1.25-6.56)	290
	13-14	*	< LOD	.129 (.067-.277)	.781 (.321-1.88)	2.08 (.971-5.07)	501
Non-Hispanic blacks	11-12	.188 (.123-.289)	.133 (.075-.230)	.455 (.253-.898)	1.95 (.962-4.42)	7.48 (3.39-18.0)	700
	13-14	.129 (.084-.197)	.080 (.040-.143)	.272 (.167-.521)	2.25 (.616-6.23)	6.89 (2.78-16.7)	607
Non-Hispanic whites	11-12	*	< LOD	.083 (.061-.122)	.290 (.198-.531)	1.01 (.496-1.57)	946
	13-14	*	< LOD	.047 (<LOD-.066)	.147 (.097-.200)	.357 (.197-.566)	1290
All Hispanics	11-12	.124 (.083-.186)	.071 (<LOD-.182)	.294 (.182-.586)	1.46 (.882-2.41)	4.50 (2.02-8.83)	576
	13-14	*	< LOD	.126 (.077-.252)	.757 (.346-1.94)	2.53 (.946-6.19)	804
Asians	11-12	*	.050 (<LOD-.100)	.223 (.102-.666)	1.36 (.706-2.33)	3.39 (1.49-12.0)	405
	13-14	*	< LOD	.116 (.085-.163)	.503 (.240-.992)	1.50 (.754-2.70)	361

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.04 and 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood 1,4-Dioxane (2009 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	09-10	*	< LOD	< LOD	< LOD	< LOD	2474
Age group							
12-19 years	09-10	*	< LOD	< LOD	< LOD	< LOD	414
20-59 years	09-10	*	< LOD	< LOD	< LOD	< LOD	1369
60 years and older	09-10	*	< LOD	< LOD	< LOD	< LOD	691
Gender							
Males	09-10	*	< LOD	< LOD	< LOD	< LOD	1217
Females	09-10	*	< LOD	< LOD	< LOD	< LOD	1257
Race/ethnicity							
Mexican Americans	09-10	*	< LOD	< LOD	< LOD	< LOD	429
Non-Hispanic blacks	09-10	*	< LOD	< LOD	< LOD	< LOD	428
Non-Hispanic whites	09-10	*	< LOD	< LOD	< LOD	< LOD	1202

Limit of detection (LOD, see Data Analysis section) for Survey year 09-10 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 1,4-Dioxane (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2793
	13-14	*	< LOD	< LOD	< LOD	< LOD	3125
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	521
	13-14	*	< LOD	< LOD	< LOD	< LOD	593
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2272
	13-14	*	< LOD	< LOD	< LOD	< LOD	2532
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1398
	13-14	*	< LOD	< LOD	< LOD	< LOD	1505
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1395
	13-14	*	< LOD	< LOD	< LOD	< LOD	1620
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
	13-14	*	< LOD	< LOD	< LOD	< LOD	503
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	734
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	975
	13-14	*	< LOD	< LOD	< LOD	< LOD	1260
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	585
	13-14	*	< LOD	< LOD	< LOD	< LOD	802
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	415
	13-14	*	< LOD	< LOD	< LOD	< LOD	356

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.5 and 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood 2,5-Dimethylfuran (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	.016 (<LOD-.032)	.100 (.083-.110)	.140 (.120-.180)	1213
	05-06	*	< LOD	< LOD	.100 (.069-.120)	.160 (.130-.180)	3160
	07-08	*	< LOD	< LOD	.087 (.056-.118)	.148 (.129-.168)	2745
	09-10	*	< LOD	< LOD	.101 (.067-.129)	.171 (.138-.206)	3332
Age group							
	12-19 years						
	05-06	*	< LOD	< LOD	.013 (<LOD-.029)	.049 (.020-.069)	930
	07-08	*	< LOD	< LOD	< LOD	.028 (<LOD-.077)	449
20-59 years	09-10	*	< LOD	< LOD	< LOD	.034 (<LOD-.065)	570
	03-04	*	< LOD	.016 (<LOD-.032)	.100 (.083-.110)	.140 (.120-.180)	1213
	05-06	*	< LOD	.013 (<LOD-.035)	.120 (.097-.144)	.170 (.140-.210)	1553
	07-08	*	< LOD	< LOD	.113 (.079-.146)	.169 (.147-.209)	1471
60 years and older	09-10	*	< LOD	< LOD	.127 (.091-.160)	.197 (.159-.241)	1825
	05-06	*	< LOD	< LOD	.069 (.027-.100)	.140 (.106-.160)	677
	07-08	*	< LOD	< LOD	.014 (<LOD-.061)	.086 (.061-.137)	825
	09-10	*	< LOD	< LOD	.032 (<LOD-.105)	.127 (.097-.179)	937
Gender							
	Males						
	03-04	*	< LOD	.019 (<LOD-.034)	.094 (.071-.110)	.130 (.110-.190)	598
	05-06	*	< LOD	< LOD	.110 (.079-.130)	.160 (.130-.190)	1490
Females	07-08	*	< LOD	< LOD	.101 (.056-.130)	.154 (.133-.187)	1358
	09-10	*	< LOD	< LOD	.117 (.079-.149)	.189 (.143-.245)	1640
	03-04	*	< LOD	.012 (<LOD-.048)	.110 (.071-.120)	.150 (.120-.210)	615
	05-06	*	< LOD	< LOD	.094 (.062-.120)	.158 (.120-.180)	1670
Race/ethnicity							
	Mexican Americans						
	03-04	*	< LOD	< LOD	.012 (<LOD-.020)	.038 (.013-.054)	237
	05-06	*	< LOD	< LOD	.015 (<LOD-.029)	.033 (.020-.055)	778
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.012 (<LOD-.019)	.032 (.019-.048)	557
	09-10	*	< LOD	< LOD	.020 (<LOD-.037)	.062 (.041-.071)	676
	03-04	*	< LOD	.042 (.019-.063)	.110 (.079-.170)	.170 (.099-.220)	258
	05-06	*	< LOD	.012 (<LOD-.030)	.085 (.058-.110)	.130 (.095-.180)	825
Non-Hispanic whites	07-08	*	< LOD	< LOD	.081 (.058-.102)	.148 (.093-.160)	557
	09-10	*	< LOD	< LOD	.103 (.061-.123)	.146 (.105-.197)	598
	03-04	*	< LOD	.021 (<LOD-.043)	.110 (.087-.120)	.150 (.120-.200)	624
	05-06	*	< LOD	< LOD	.118 (.091-.140)	.170 (.140-.230)	1325
	07-08	*	< LOD	< LOD	.111 (.077-.142)	.165 (.146-.191)	1215
	09-10	*	< LOD	< LOD	.122 (.092-.155)	.196 (.156-.240)	1494

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.012, 0.011, 0.011, and 0.011 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,5-Dimethylfuran_BiomonitoringSummary.html

Blood 2,5-Dimethylfuran (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.081 (.053-.099)	.142 (.129-.166)	2812
	13-14	*	< LOD	< LOD	.086 (.068-.103)	.148 (.124-.167)	3203
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	.028 (<LOD-.039)	527
	13-14	*	< LOD	< LOD	< LOD	.031 (<LOD-.106)	599
20 years and older	11-12	*	< LOD	< LOD	.095 (.074-.110)	.152 (.136-.178)	2285
	13-14	*	< LOD	< LOD	.092 (.080-.108)	.155 (.133-.174)	2604
Gender							
Males	11-12	*	< LOD	< LOD	.082 (.054-.099)	.134 (.122-.163)	1406
	13-14	*	< LOD	< LOD	.088 (.054-.113)	.153 (.115-.181)	1545
Females	11-12	*	< LOD	< LOD	.077 (.048-.101)	.148 (.117-.210)	1406
	13-14	*	< LOD	< LOD	.085 (.062-.104)	.142 (.116-.158)	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	.025 (<LOD-.049)	.061 (.037-.095)	300
	13-14	*	< LOD	< LOD	< LOD	.031 (.019-.058)	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.073 (.046-.093)	.114 (.095-.145)	740
	13-14	*	< LOD	.020 (<LOD-.040)	.107 (.087-.125)	.157 (.127-.184)	614
Non-Hispanic whites	11-12	*	< LOD	< LOD	.100 (.081-.125)	.168 (.139-.198)	974
	13-14	*	< LOD	< LOD	.097 (.075-.122)	.165 (.142-.189)	1305
All Hispanics	11-12	*	< LOD	< LOD	.022 (<LOD-.037)	.065 (.043-.099)	598
	13-14	*	< LOD	< LOD	.016 (<LOD-.035)	.062 (.032-.101)	810
Asians	11-12	*	< LOD	< LOD	< LOD	.025 (<LOD-.051)	416
	13-14	*	< LOD	< LOD	< LOD	.039 (<LOD-.101)	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.011 and 0.011.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/2,5-Dimethylfuran_BiomonitoringSummary.html

Blood Benzene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	.030 (<LOD-.050)	.100 (.060-.140)	.190 (.140-.290)	.320 (.190-.480)	837
	03-04	*	.027 (.025-.031)	.064 (.050-.084)	.170 (.150-.190)	.260 (.210-.320)	1345
	05-06	*	.026 (<LOD-.030)	.056 (.047-.072)	.220 (.157-.260)	.310 (.264-.370)	3091
	07-08	*	< LOD	.041 (.028-.062)	.198 (.156-.246)	.294 (.246-.380)	2685
	09-10	*	< LOD	.035 (.026-.049)	.198 (.154-.234)	.307 (.262-.351)	3236
Age group							
12-19 years	05-06	*	.024 (<LOD-.028)	.039 (.031-.056)	.089 (.066-.110)	.120 (.092-.180)	912
	07-08	*	< LOD	< LOD	.053 (.029-.088)	.106 (.056-.159)	426
	09-10	*	< LOD	< LOD	.047 (.027-.085)	.112 (.063-.205)	546
20-59 years	01-02	*	.030 (<LOD-.050)	.100 (.060-.140)	.190 (.140-.290)	.320 (.190-.480)	837
	03-04	*	.027 (.025-.031)	.064 (.050-.084)	.170 (.150-.190)	.260 (.210-.320)	1345
	05-06	*	.028 (.025-.032)	.072 (.053-.100)	.240 (.200-.290)	.340 (.300-.390)	1513
	07-08	*	< LOD	.075 (.037-.126)	.243 (.187-.290)	.328 (.280-.416)	1445
	09-10	*	< LOD	.054 (.040-.088)	.233 (.180-.288)	.340 (.288-.417)	1776
60 years and older	05-06	*	< LOD	.042 (.036-.048)	.180 (.100-.230)	.270 (.200-.340)	666
	07-08	*	< LOD	< LOD	.120 (.065-.158)	.213 (.150-.279)	814
	09-10	*	< LOD	< LOD	.108 (.048-.177)	.224 (.135-.328)	914
Gender							
Males	01-02	*	.030 (<LOD-.050)	.110 (.060-.160)	.230 (.150-.370)	.370 (.210-.510)	403
	03-04	.039 (.035-.043)	.030 (.027-.035)	.069 (.053-.084)	.160 (.140-.180)	.240 (.190-.320)	654
	05-06	*	.028 (.025-.032)	.066 (.051-.083)	.230 (.165-.280)	.330 (.260-.440)	1459
	07-08	*	< LOD	.056 (.036-.095)	.216 (.172-.274)	.303 (.252-.398)	1330
	09-10	*	< LOD	.045 (.034-.060)	.225 (.177-.272)	.326 (.273-.421)	1602
Females	01-02	*	.030 (<LOD-.050)	.100 (.060-.130)	.180 (.120-.240)	.250 (.170-.330)	434
	03-04	*	.025 (<LOD-.029)	.057 (.040-.090)	.180 (.150-.220)	.290 (.220-.420)	691
	05-06	*	.024 (<LOD-.028)	.049 (.040-.067)	.200 (.150-.230)	.290 (.250-.340)	1632
	07-08	*	< LOD	.030 (<LOD-.045)	.182 (.109-.240)	.285 (.220-.368)	1355
	09-10	*	< LOD	.027 (<LOD-.042)	.166 (.105-.214)	.279 (.215-.331)	1634
Race/ethnicity							
Mexican Americans	01-02	*	.030 (<LOD-.070)	.070 (.030-.170)	.140 (.060-.360)	.230 (.130-.370)	227
	03-04	*	.027 (<LOD-.035)	.041 (.034-.057)	.077 (.058-.110)	.130 (.084-.320)	254
	05-06	*	< LOD	.036 (.031-.045)	.060 (.048-.086)	.096 (.072-.140)	744
	07-08	*	< LOD	< LOD	.053 (.038-.076)	.092 (.056-.120)	522
	09-10	*	< LOD	< LOD	.061 (.041-.086)	.141 (.093-.199)	646
Non-Hispanic blacks	01-02	*	< LOD	.060 (<LOD-.160)	.180 (.090-.300)	.250 (.160-.480)	137
	03-04	.043 (.033-.058)	.029 (<LOD-.054)	.092 (.055-.140)	.210 (.140-.290)	.320 (.240-.460)	302
	05-06	*	.026 (<LOD-.034)	.077 (.051-.110)	.180 (.150-.221)	.280 (.220-.360)	812
	07-08	*	< LOD	.075 (.056-.093)	.180 (.136-.284)	.318 (.240-.512)	556
	09-10	*	< LOD	.050 (.028-.081)	.212 (.142-.311)	.365 (.262-.480)	578
Non-Hispanic whites	01-02	*	.030 (<LOD-.060)	.110 (.070-.160)	.210 (.140-.340)	.330 (.190-.510)	411
	03-04	*	.028 (.025-.033)	.068 (.053-.088)	.180 (.150-.200)	.280 (.210-.330)	687
	05-06	*	.027 (<LOD-.031)	.069 (.049-.091)	.240 (.190-.280)	.330 (.270-.390)	1309
	07-08	*	< LOD	.051 (.028-.107)	.226 (.182-.276)	.313 (.276-.388)	1210
	09-10	*	< LOD	.041 (.031-.055)	.224 (.178-.263)	.326 (.290-.390)	1479

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.024, 0.024, 0.024, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html

Blood Benzene (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.027 (<LOD-.036)	.159 (.121-.206)	.277 (.225-.328)	2671
	13-14	*	< LOD	.027 (<LOD-.042)	.180 (.159-.200)	.285 (.239-.310)	3094
Age group							
12-19 years	11-12	*	< LOD	< LOD	.043 (.029-.058)	.086 (.052-.143)	501
	13-14	*	< LOD	< LOD	.057 (.030-.088)	.148 (.059-.216)	589
20 years and older	11-12	*	< LOD	.031 (<LOD-.045)	.178 (.137-.221)	.284 (.238-.348)	2170
	13-14	*	< LOD	.033 (<LOD-.052)	.194 (.167-.214)	.295 (.250-.315)	2505
Gender							
Males	11-12	*	< LOD	.033 (<LOD-.056)	.162 (.128-.202)	.272 (.227-.310)	1340
	13-14	*	< LOD	.032 (<LOD-.043)	.195 (.166-.217)	.298 (.236-.339)	1494
Females	11-12	*	< LOD	< LOD	.150 (.106-.214)	.279 (.198-.398)	1331
	13-14	*	< LOD	< LOD	.162 (.145-.186)	.259 (.232-.295)	1600
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	.080 (.055-.110)	.138 (.074-.222)	282
	13-14	*	< LOD	< LOD	.039 (<LOD-.068)	.107 (.038-.199)	502
Non-Hispanic blacks	11-12	*	< LOD	.034 (<LOD-.065)	.146 (.113-.175)	.244 (.175-.301)	715
	13-14	*	< LOD	.074 (.039-.107)	.210 (.182-.249)	.327 (.250-.444)	595
Non-Hispanic whites	11-12	*	< LOD	.031 (<LOD-.056)	.198 (.148-.239)	.310 (.232-.383)	908
	13-14	*	< LOD	.036 (<LOD-.071)	.205 (.165-.244)	.299 (.253-.339)	1239
All Hispanics	11-12	*	< LOD	< LOD	.070 (.048-.095)	.138 (.091-.206)	572
	13-14	*	< LOD	< LOD	.049 (.029-.123)	.150 (.108-.203)	800
Asians	11-12	*	< LOD	< LOD	.030 (<LOD-.038)	.053 (.034-.115)	396
	13-14	*	< LOD	< LOD	.035 (<LOD-.078)	.084 (.036-.139)	357

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.024 and 0.024.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html

Blood Chlorobenzene (Monochlorobenzene) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3072
	07-08	*	< LOD	< LOD	< LOD	< LOD	2749
	09-10	*	< LOD	< LOD	< LOD	< LOD	3236
Age group 12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	910
	07-08	*	< LOD	< LOD	< LOD	< LOD	434
	09-10	*	< LOD	< LOD	< LOD	< LOD	561
	20-59 years	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1495
	07-08	*	< LOD	< LOD	< LOD	< LOD	1487
	09-10	*	< LOD	< LOD	< LOD	< LOD	1775
	60 years and older	*	< LOD	< LOD	< LOD	< LOD	667
	05-06	*	< LOD	< LOD	< LOD	< LOD	828
	07-08	*	< LOD	< LOD	< LOD	< LOD	900
	09-10	*	< LOD	< LOD	< LOD	< LOD	
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	669
	05-06	*	< LOD	< LOD	< LOD	< LOD	1453
	07-08	*	< LOD	< LOD	< LOD	< LOD	1358
	09-10	*	< LOD	< LOD	< LOD	< LOD	1591
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1619
	07-08	*	< LOD	< LOD	< LOD	< LOD	1391
	09-10	*	< LOD	< LOD	< LOD	< LOD	1645
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	740
	07-08	*	< LOD	< LOD	< LOD	< LOD	524
	09-10	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	817
	07-08	*	< LOD	< LOD	< LOD	< LOD	568
	09-10	*	< LOD	< LOD	< LOD	< LOD	585
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1287
	07-08	*	< LOD	< LOD	< LOD	< LOD	1227
	09-10	*	< LOD	< LOD	< LOD	< LOD	1432

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.011, 0.011, 0.011, and 0.011 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood Chlorobenzene (Monochlorobenzene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2797
	13-14	*	< LOD	< LOD	< LOD	< LOD	3203
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	525
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2272
	13-14	*	< LOD	< LOD	< LOD	< LOD	2604
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1402
	13-14	*	< LOD	< LOD	< LOD	< LOD	1545
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1395
	13-14	*	< LOD	< LOD	< LOD	< LOD	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	294
	13-14	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	743
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	970
	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	589
	13-14	*	< LOD	< LOD	< LOD	< LOD	809
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	411
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.011 and 0.011.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Chlorobenzenes_BiomonitoringSummary.html

Blood Chloroethane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3194
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	597
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2597
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1539
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1655
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	614
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1299
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	809
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	362

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.045.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Cyclohexane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3004
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	559
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2445
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1458
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	442
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	585
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1249
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	727
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	338

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.02.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Dibromomethane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	3152
	07-08	*	< LOD	< LOD	< LOD	< LOD	2712
	09-10	*	< LOD	< LOD	< LOD	< LOD	3243
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	929
	07-08	*	< LOD	< LOD	< LOD	< LOD	427
	09-10	*	< LOD	< LOD	< LOD	< LOD	562
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1355
	05-06	*	< LOD	< LOD	< LOD	< LOD	1554
	07-08	*	< LOD	< LOD	< LOD	< LOD	1461
	09-10	*	< LOD	< LOD	< LOD	< LOD	1779
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	669
	07-08	*	< LOD	< LOD	< LOD	< LOD	824
	09-10	*	< LOD	< LOD	< LOD	< LOD	902
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	666
	05-06	*	< LOD	< LOD	< LOD	< LOD	1494
	07-08	*	< LOD	< LOD	< LOD	< LOD	1345
	09-10	*	< LOD	< LOD	< LOD	< LOD	1594
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	689
	05-06	*	< LOD	< LOD	< LOD	< LOD	1658
	07-08	*	< LOD	< LOD	< LOD	< LOD	1367
	09-10	*	< LOD	< LOD	< LOD	< LOD	1649
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	778
	07-08	*	< LOD	< LOD	< LOD	< LOD	510
	09-10	*	< LOD	< LOD	< LOD	< LOD	674
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	292
	05-06	*	< LOD	< LOD	< LOD	< LOD	816
	07-08	*	< LOD	< LOD	< LOD	< LOD	556
	09-10	*	< LOD	< LOD	< LOD	< LOD	586
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	693
	05-06	*	< LOD	< LOD	< LOD	< LOD	1324
	07-08	*	< LOD	< LOD	< LOD	< LOD	1236
	09-10	*	< LOD	< LOD	< LOD	< LOD	1433

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.03, 0.03, 0.03, and 0.03 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood Dibromomethane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2750
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	508
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2242
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1369
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1381
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	298
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	732
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	947
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	588
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	400

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.03.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result. .

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood Dichloromethane (Methylene chloride) (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1165
	05-06	*	< LOD	< LOD	< LOD	< LOD	2852
	07-08	*	< LOD	< LOD	< LOD	< LOD	2569
	09-10	*	< LOD	< LOD	< LOD	< LOD	2878
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	837
	07-08	*	< LOD	< LOD	< LOD	< LOD	416
	09-10	*	< LOD	< LOD	< LOD	< LOD	489
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1165
	05-06	*	< LOD	< LOD	< LOD	< LOD	1400
	07-08	*	< LOD	< LOD	< LOD	< LOD	1369
	09-10	*	< LOD	< LOD	< LOD	< LOD	1601
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	615
	07-08	*	< LOD	< LOD	< LOD	< LOD	784
	09-10	*	< LOD	< LOD	< LOD	< LOD	788
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	568
	05-06	*	< LOD	< LOD	< LOD	< LOD	1338
	07-08	*	< LOD	< LOD	< LOD	< LOD	1279
	09-10	*	< LOD	< LOD	< LOD	< LOD	1404
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	597
	05-06	*	< LOD	< LOD	< LOD	< LOD	1514
	07-08	*	< LOD	< LOD	< LOD	< LOD	1290
	09-10	*	< LOD	< LOD	< LOD	< LOD	1474
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	225
	05-06	*	< LOD	< LOD	< LOD	< LOD	731
	07-08	*	< LOD	< LOD	< LOD	< LOD	521
	09-10	*	< LOD	< LOD	< LOD	< LOD	575
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	245
	05-06	*	< LOD	< LOD	< LOD	< LOD	729
	07-08	*	< LOD	< LOD	< LOD	< LOD	476
	09-10	*	< LOD	< LOD	< LOD	< LOD	560
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	607
	05-06	*	< LOD	< LOD	< LOD	< LOD	1186
	07-08	*	< LOD	< LOD	< LOD	< LOD	1154
	09-10	*	< LOD	< LOD	< LOD	< LOD	1278

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.07, 0.25, 0.25, and 0.25 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood Dichloromethane (Methylene chloride) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2559
	13-14	*	< LOD	< LOD	< LOD	< LOD	3143
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	489
	13-14	*	< LOD	< LOD	< LOD	< LOD	588
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2070
	13-14	*	< LOD	< LOD	< LOD	< LOD	2555
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1294
	13-14	*	< LOD	< LOD	< LOD	< LOD	1515
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1265
	13-14	*	< LOD	< LOD	< LOD	< LOD	1628
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	281
	13-14	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	674
	13-14	*	< LOD	< LOD	< LOD	< LOD	608
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	879
	13-14	*	< LOD	< LOD	< LOD	< LOD	1269
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	526
	13-14	*	< LOD	< LOD	< LOD	< LOD	798
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	400
	13-14	*	< LOD	< LOD	< LOD	< LOD	359

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.25 and 0.25.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood Diethyl Ether (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3041
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	565
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2476
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1472
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1569
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	479
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	573
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1247
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	773
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	340

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Ethyl Acetate (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3140
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	588
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2552
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1512
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1628
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	482
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	605
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1292
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	784
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	351

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.158.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Ethylbenzene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	.034 (.029-.039)	.030 (.030-.040)	.050 (.050-.070)	.090 (.070-.120)	.140 (.090-.180)	879
	03-04	.035 (.033-.037)	.032 (.030-.036)	.053 (.048-.057)	.083 (.077-.088)	.110 (.098-.120)	1299
	05-06	.038 (.036-.041)	.035 (.033-.037)	.059 (.052-.067)	.100 (.093-.114)	.140 (.122-.160)	3119
	07-08	*	< LOD	.038 (.031-.047)	.083 (.071-.098)	.122 (.099-.143)	2750
	09-10	*	< LOD	.047 (.038-.059)	.114 (.090-.145)	.175 (.133-.250)	3209
Age group							
12-19 years	05-06	.032 (.030-.034)	.031 (.029-.033)	.046 (.042-.049)	.070 (.058-.085)	.096 (.075-.120)	909
	07-08	*	< LOD	.026 (<LOD-.035)	.051 (.036-.059)	.068 (.057-.090)	448
	09-10	*	< LOD	.028 (<LOD-.032)	.055 (.041-.071)	.082 (.065-.117)	550
20-59 years	01-02	.034 (.029-.039)	.030 (.030-.040)	.050 (.050-.070)	.090 (.070-.120)	.140 (.090-.180)	879
	03-04	.035 (.033-.037)	.032 (.030-.036)	.053 (.048-.057)	.083 (.077-.088)	.110 (.098-.120)	1299
	05-06	.040 (.037-.043)	.037 (.034-.039)	.062 (.054-.073)	.110 (.098-.126)	.150 (.130-.180)	1539
	07-08	*	< LOD	.045 (.036-.056)	.094 (.077-.114)	.131 (.112-.160)	1473
	09-10	*	< LOD	.058 (.044-.075)	.129 (.104-.166)	.189 (.149-.518)	1767
60 years and older	05-06	.037 (.033-.040)	.033 (.030-.036)	.056 (.046-.068)	.098 (.090-.110)	.130 (.110-.160)	671
	07-08	*	< LOD	.032 (.026-.038)	.062 (.050-.083)	.100 (.074-.123)	829
	09-10	*	< LOD	.041 (.032-.050)	.086 (.067-.116)	.139 (.108-.186)	892
Gender							
Males	01-02	.035 (.029-.041)	.030 (<LOD-.040)	.060 (.040-.070)	.100 (.070-.150)	.150 (.090-.220)	419
	03-04	.037 (.034-.041)	.036 (.031-.040)	.057 (.051-.065)	.086 (.078-.099)	.110 (.094-.130)	625
	05-06	.042 (.039-.044)	.038 (.036-.041)	.067 (.057-.074)	.114 (.099-.131)	.160 (.136-.180)	1474
	07-08	*	< LOD	.044 (.037-.056)	.090 (.077-.105)	.128 (.102-.154)	1356
	09-10	*	< LOD	.055 (.045-.070)	.127 (.099-.168)	.189 (.156-.342)	1582
Females	01-02	.033 (.028-.038)	.030 (.030-.040)	.050 (.040-.060)	.080 (.060-.120)	.130 (.070-.180)	460
	03-04	.032 (.030-.034)	.030 (.027-.033)	.048 (.041-.053)	.081 (.071-.089)	.100 (.091-.120)	674
	05-06	.035 (.032-.038)	.032 (.029-.035)	.052 (.047-.061)	.093 (.081-.103)	.120 (.106-.150)	1645
	07-08	*	< LOD	.032 (.027-.043)	.074 (.058-.092)	.116 (.089-.134)	1394
	09-10	*	< LOD	.040 (.031-.054)	.099 (.076-.122)	.153 (.114-.236)	1627
Race/ethnicity							
Mexican Americans	01-02	*	.030 (<LOD-.040)	.040 (.040-.060)	.070 (.050-.110)	.120 (.070-.210)	220
	03-04	.031 (.027-.036)	.029 (<LOD-.035)	.044 (.035-.048)	.064 (.051-.074)	.091 (.066-.170)	253
	05-06	.032 (.028-.036)	.030 (.026-.036)	.047 (.039-.057)	.072 (.051-.093)	.086 (.073-.120)	752
	07-08	*	< LOD	.029 (.025-.036)	.050 (.040-.068)	.072 (.059-.100)	557
	09-10	*	< LOD	.035 (.027-.052)	.070 (.056-.096)	.114 (.078-.247)	626
Non-Hispanic blacks	01-02	.032 (.027-.038)	.030 (<LOD-.040)	.050 (.030-.070)	.080 (.060-.130)	.130 (.070-.240)	159
	03-04	.032 (.027-.038)	.030 (<LOD-.037)	.050 (.037-.066)	.079 (.065-.100)	.110 (.084-.130)	281
	05-06	.037 (.035-.040)	.034 (.030-.038)	.057 (.052-.064)	.095 (.085-.100)	.120 (.104-.140)	809
	07-08	*	< LOD	.048 (.037-.053)	.086 (.066-.105)	.117 (.089-.170)	559
	09-10	*	< LOD	.047 (.030-.083)	.137 (.075-.215)	.215 (.097-1.52)	583
Non-Hispanic whites	01-02	.035 (.029-.043)	.030 (<LOD-.040)	.060 (.050-.070)	.090 (.070-.140)	.150 (.090-.190)	432
	03-04	.036 (.034-.038)	.034 (.030-.038)	.055 (.050-.061)	.087 (.081-.092)	.110 (.098-.130)	669
	05-06	.039 (.037-.042)	.036 (.033-.038)	.061 (.053-.072)	.110 (.095-.120)	.150 (.125-.180)	1326
	07-08	*	< LOD	.040 (.031-.053)	.090 (.075-.112)	.128 (.105-.154)	1190
	09-10	*	< LOD	.054 (.042-.065)	.121 (.099-.151)	.180 (.145-.281)	1465

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.024, 0.024, 0.024, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html

Blood Ethylbenzene (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.029 (.025-.034)	.074 (.059-.090)	.115 (.102-.125)	2657
	13-14	*	< LOD	.029 (<LOD-.034)	.074 (.065-.083)	.118 (.098-.143)	3077
Age group							
12-19 years	11-12	*	< LOD	< LOD	.040 (.036-.044)	.046 (.044-.070)	502
	13-14	*	< LOD	< LOD	.032 (.025-.041)	.060 (.034-.095)	576
20 years and older	11-12	*	< LOD	.030 (.026-.036)	.080 (.067-.095)	.117 (.104-.140)	2155
	13-14	*	< LOD	.032 (.026-.038)	.079 (.069-.092)	.124 (.106-.150)	2501
Gender							
Males	11-12	*	< LOD	.034 (.029-.039)	.080 (.067-.095)	.117 (.106-.145)	1331
	13-14	*	< LOD	.031 (.027-.036)	.079 (.063-.101)	.135 (.106-.159)	1486
Females	11-12	*	< LOD	.025 (<LOD-.030)	.064 (.051-.085)	.107 (.085-.125)	1326
	13-14	*	< LOD	< LOD	.068 (.062-.077)	.107 (.092-.124)	1591
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.024 (<LOD-.030)	.050 (.031-.068)	.078 (.041-.415)	276
	13-14	*	< LOD	< LOD	.040 (.032-.051)	.064 (.047-.092)	491
Non-Hispanic blacks	11-12	*	< LOD	.029 (.025-.035)	.063 (.054-.076)	.097 (.076-.113)	688
	13-14	*	< LOD	.044 (.032-.055)	.088 (.074-.095)	.125 (.102-.143)	590
Non-Hispanic whites	11-12	*	< LOD	.031 (.027-.038)	.085 (.071-.097)	.118 (.108-.140)	937
	13-14	*	< LOD	.032 (.025-.040)	.083 (.066-.106)	.140 (.107-.169)	1241
All Hispanics	11-12	*	< LOD	< LOD	.049 (.035-.062)	.086 (.051-.124)	552
	13-14	*	< LOD	< LOD	.046 (.033-.060)	.072 (.062-.092)	789
Asians	11-12	*	< LOD	< LOD	.030 (.026-.037)	.042 (.034-.055)	400
	13-14	*	< LOD	< LOD	.036 (.025-.052)	.054 (.036-.076)	351

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.024 and 0.024.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html

Blood Furan (2007 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	.042 (<LOD-.065)	.089 (.068-.106)	2758
	09-10	*	< LOD	< LOD	.060 (.044-.078)	.103 (.081-.127)	3167
Age group							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	450
	09-10	*	< LOD	< LOD	< LOD	.034 (<LOD-.065)	544
20-59 years	07-08	*	< LOD	< LOD	.066 (.032-.088)	.099 (.082-.128)	1455
	09-10	*	< LOD	< LOD	.075 (.051-.094)	.115 (.087-.150)	1737
60 years and older	07-08	*	< LOD	< LOD	< LOD	.052 (<LOD-.084)	853
	09-10	*	< LOD	< LOD	.032 (<LOD-.063)	.081 (.060-.106)	886
Gender							
Males	07-08	*	< LOD	< LOD	.051 (<LOD-.074)	.091 (.062-.121)	1367
	09-10	*	< LOD	< LOD	.072 (.049-.086)	.115 (.083-.155)	1570
Females	07-08	*	< LOD	< LOD	.038 (<LOD-.063)	.087 (.050-.102)	1391
	09-10	*	< LOD	< LOD	.051 (.034-.070)	.091 (.070-.109)	1597
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	540
	09-10	*	< LOD	< LOD	< LOD	.032 (.026-.047)	658
Non-Hispanic blacks	07-08	*	< LOD	< LOD	.039 (.026-.050)	.083 (.050-.099)	575
	09-10	*	< LOD	< LOD	.059 (.033-.106)	.107 (.078-.129)	555
Non-Hispanic whites	07-08	*	< LOD	< LOD	.056 (<LOD-.083)	.098 (.080-.124)	1206
	09-10	*	< LOD	< LOD	.075 (.057-.090)	.115 (.092-.136)	1403

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.025 and 0.025, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Furan (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.044 (.031-.060)	.088 (.074-.105)	2616
	13-14	*	< LOD	< LOD	.050 (.037-.063)	.091 (.074-.103)	3203
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	.026 (<LOD-.046)	494
	13-14	*	< LOD	< LOD	< LOD	.032 (<LOD-.066)	599
20 years and older	11-12	*	< LOD	< LOD	.049 (.036-.066)	.097 (.080-.108)	2122
	13-14	*	< LOD	< LOD	.056 (.044-.068)	.095 (.082-.106)	2604
Gender							
Males	11-12	*	< LOD	< LOD	.045 (.033-.065)	.087 (.067-.105)	1306
	13-14	*	< LOD	< LOD	.052 (.032-.070)	.092 (.070-.114)	1545
Females	11-12	*	< LOD	< LOD	.043 (.026-.058)	.088 (.064-.116)	1310
	13-14	*	< LOD	< LOD	.050 (.036-.064)	.091 (.066-.108)	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.036 (<LOD-.051)	285
	13-14	*	< LOD	< LOD	< LOD	< LOD	504
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.034 (.028-.046)	.070 (.046-.079)	699
	13-14	*	< LOD	< LOD	.068 (.052-.073)	.093 (.074-.109)	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	.060 (.038-.074)	.109 (.088-.121)	896
	13-14	*	< LOD	< LOD	.058 (.042-.075)	.103 (.083-.119)	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	.042 (<LOD-.060)	555
	13-14	*	< LOD	< LOD	< LOD	.042 (<LOD-.054)	809
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	386
	13-14	*	< LOD	< LOD	< LOD	.028 (<LOD-.054)	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.025 and 0.025.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Heptane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3099
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	575
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2524
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1497
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1602
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	471
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	592
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1279
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	769
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	350

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Hexachloroethane (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	3155
	07-08	*	< LOD	< LOD	< LOD	< LOD	2627
	09-10	*	< LOD	< LOD	< LOD	< LOD	2652
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	930
	07-08	*	< LOD	< LOD	< LOD	< LOD	419
	09-10	*	< LOD	< LOD	< LOD	< LOD	458
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1366
	05-06	*	< LOD	< LOD	< LOD	< LOD	1547
	07-08	*	< LOD	< LOD	< LOD	< LOD	1417
	09-10	*	< LOD	< LOD	< LOD	< LOD	1434
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	678
	07-08	*	< LOD	< LOD	< LOD	< LOD	791
	09-10	*	< LOD	< LOD	< LOD	< LOD	760
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	669
	05-06	*	< LOD	< LOD	< LOD	< LOD	1495
	07-08	*	< LOD	< LOD	< LOD	< LOD	1285
	09-10	*	< LOD	< LOD	< LOD	< LOD	1292
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	697
	05-06	*	< LOD	< LOD	< LOD	< LOD	1660
	07-08	*	< LOD	< LOD	< LOD	< LOD	1342
	09-10	*	< LOD	< LOD	< LOD	< LOD	1360
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	267
	05-06	*	< LOD	< LOD	< LOD	< LOD	758
	07-08	*	< LOD	< LOD	< LOD	< LOD	506
	09-10	*	< LOD	< LOD	< LOD	< LOD	564
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	300
	05-06	*	< LOD	< LOD	< LOD	< LOD	830
	07-08	*	< LOD	< LOD	< LOD	< LOD	531
	09-10	*	< LOD	< LOD	< LOD	< LOD	500
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	694
	05-06	*	< LOD	< LOD	< LOD	< LOD	1335
	07-08	*	< LOD	< LOD	< LOD	< LOD	1191
	09-10	*	< LOD	< LOD	< LOD	< LOD	1097

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.011, 0.011, 0.011, and 0.011 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Hexachloroethane_BiomonitoringSummary.html

Blood Hexachloroethane (2011 – 2012)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2788
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	523
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2265
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1399
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1389
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	300
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	741
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	959
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	589
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	415

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.011.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured after Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Hexachloroethane_BiomonitoringSummary.html

Blood Hexane (2009 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	09-10	*	< LOD	< LOD	< LOD	< LOD	3266
Age group							
12-19 years	09-10	*	< LOD	< LOD	< LOD	< LOD	556
20-59 years	09-10	*	< LOD	< LOD	< LOD	< LOD	1790
60 years and older	09-10	*	< LOD	< LOD	< LOD	< LOD	920
Gender							
Males	09-10	*	< LOD	< LOD	< LOD	< LOD	1610
Females	09-10	*	< LOD	< LOD	< LOD	< LOD	1656
Race/ethnicity							
Mexican Americans	09-10	*	< LOD	< LOD	< LOD	< LOD	666
Non-Hispanic blacks	09-10	*	< LOD	< LOD	< LOD	< LOD	586
Non-Hispanic whites	09-10	*	< LOD	< LOD	< LOD	< LOD	1457

Limit of detection (LOD, see Data Analysis section) for Survey year 09-10 is 0.122.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Hexane (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2640
	13-14	*	< LOD	< LOD	< LOD	< LOD	2927
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	500
	13-14	*	< LOD	< LOD	< LOD	< LOD	549
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2140
	13-14	*	< LOD	< LOD	< LOD	< LOD	2378
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1319
	13-14	*	< LOD	< LOD	< LOD	< LOD	1423
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1321
	13-14	*	< LOD	< LOD	< LOD	< LOD	1504
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	271
	13-14	*	< LOD	< LOD	< LOD	< LOD	444
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	708
	13-14	*	< LOD	< LOD	< LOD	< LOD	568
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	909
	13-14	*	< LOD	< LOD	< LOD	< LOD	1208
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	563
	13-14	*	< LOD	< LOD	< LOD	< LOD	722
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	381
	13-14	*	< LOD	< LOD	< LOD	< LOD	331

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.122 and 0.122.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Isopropylbenzene (Cumene) (2007 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	*	< LOD	< LOD	< LOD	< LOD	2752
	09-10	*	< LOD	< LOD	< LOD	< LOD	3250
Age group							
12-19 years	07-08	*	< LOD	< LOD	< LOD	< LOD	448
	09-10	*	< LOD	< LOD	< LOD	< LOD	561
20-59 years	07-08	*	< LOD	< LOD	< LOD	< LOD	1479
	09-10	*	< LOD	< LOD	< LOD	< LOD	1768
60 years and older	07-08	*	< LOD	< LOD	< LOD	< LOD	825
	09-10	*	< LOD	< LOD	< LOD	< LOD	921
Gender							
Males	07-08	*	< LOD	< LOD	< LOD	< LOD	1369
	09-10	*	< LOD	< LOD	< LOD	< LOD	1591
Females	07-08	*	< LOD	< LOD	< LOD	< LOD	1383
	09-10	*	< LOD	< LOD	< LOD	< LOD	1659
Race/ethnicity							
Mexican Americans	07-08	*	< LOD	< LOD	< LOD	< LOD	518
	09-10	*	< LOD	< LOD	< LOD	< LOD	671
Non-Hispanic blacks	07-08	*	< LOD	< LOD	< LOD	< LOD	544
	09-10	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	07-08	*	< LOD	< LOD	< LOD	< LOD	1251
	09-10	*	< LOD	< LOD	< LOD	< LOD	1445

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 and 09-10 are 0.04 and 0.04, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Isopropylbenzene (Cumene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2762
	13-14	*	< LOD	< LOD	< LOD	< LOD	3204
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	521
	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2241
	13-14	*	< LOD	< LOD	< LOD	< LOD	2605
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1387
	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1375
	13-14	*	< LOD	< LOD	< LOD	< LOD	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	294
	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	735
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	953
	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	587
	13-14	*	< LOD	< LOD	< LOD	< LOD	810
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	406
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.04 and 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Methyl-tert-Butyl Ether (MTBE) (2001 – 2008)‡

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	16.4 (4.77-56.7)	27.7 (7.29-64.9)	73.8 (35.5-127)	132 (64.0-278)	188 (109-339)	672
	03-04	11.0 (5.98-20.1)	10.0 (4.60-25.1)	45.0 (16.0-98.0)	110 (70.0-180)	170 (110-340)	1307
	05-06	6.16 (2.94-12.9)	4.60 (1.80-15.0)	20.0 (5.20-73.0)	75.0 (22.0-140)	110 (49.0-250)	3080
	07-08	*	< LOD	< LOD	3.50 (2.00-7.83)	7.27 (3.40-22.3)	2964
Age group							
	12-19 years	05-06 5.85 (2.61-13.1)	4.20 (1.40-18.0)	18.0 (4.60-75.0)	70.0 (18.0-140)	110 (62.0-180)	911
		07-08 *	< LOD	< LOD	3.74 (1.90-8.47)	8.43 (3.10-19.0)	476
	20-59 years	01-02 16.4 (4.77-56.7)	27.7 (7.29-64.9)	73.8 (35.5-127)	132 (64.0-278)	188 (109-339)	672
		03-04 11.0 (5.98-20.1)	10.0 (4.60-25.1)	45.0 (16.0-98.0)	110 (70.0-180)	170 (110-340)	1307
		05-06 6.26 (3.05-12.9)	4.80 (2.00-14.0)	20.0 (5.50-70.0)	71.0 (21.0-150)	110 (46.0-250)	1512
		07-08 *	< LOD	< LOD	3.16 (1.90-5.10)	5.10 (2.87-19.0)	1597
	60 years and older	05-06 6.00 (2.67-13.5)	3.80 (1.60-14.0)	22.0 (4.00-94.0)	86.0 (19.0-180)	120 (55.0-290)	657
	07-08 *		< LOD	1.80 (<LOD-3.10)	6.00 (2.70-14.5)	14.0 (5.25-28.0)	891
Gender							
Males	01-02	16.9 (4.96-57.7)	27.9 (6.82-64.6)	75.0 (35.5-131)	132 (54.9-307)	167 (109-417)	334
	03-04	12.2 (6.29-23.6)	11.0 (4.80-29.0)	55.0 (18.0-110)	130 (79.0-200)	200 (110-470)	641
	05-06	6.24 (3.07-12.7)	4.60 (1.90-15.0)	20.0 (5.90-69.0)	73.0 (25.0-120)	110 (52.0-230)	1462
	07-08	*	< LOD	1.40 (<LOD-2.21)	3.40 (1.93-8.40)	7.27 (3.00-26.0)	1481
Females	01-02	16.0 (4.12-61.8)	26.6 (5.93-74.6)	72.7 (32.6-132)	142 (73.5-255)	194 (92.3-336)	338
	03-04	9.88 (5.62-17.4)	8.90 (4.30-23.0)	38.0 (14.0-85.0)	94.0 (58.0-160)	140 (90.0-250)	666
	05-06	6.08 (2.81-13.1)	4.50 (1.70-14.0)	19.0 (4.90-79.0)	76.0 (20.0-160)	110 (48.0-250)	1618
	07-08	*	< LOD	< LOD	3.50 (1.90-8.40)	7.30 (3.60-16.5)	1483
Race/ethnicity							
Mexican Americans	01-02	23.3 (4.96-110)	33.4 (2.92-187)	91.3 (26.1-255)	225 (80.6-339)	273 (182-358)	166
	03-04	11.6 (5.35-25.3)	12.0 (3.80-29.0)	32.0 (14.0-80.0)	80.0 (38.0-190)	160 (74.0-220)	245
	05-06	7.61 (2.99-19.3)	5.40 (2.00-33.0)	30.0 (4.60-90.0)	67.0 (26.0-190)	100 (45.0-330)	735
	07-08	*	< LOD	1.71 (<LOD-2.90)	4.10 (2.19-9.60)	8.80 (5.20-11.5)	559
Non-Hispanic blacks	01-02	14.9 (6.11-36.4)	26.4 (3.11-55.6)	52.6 (30.0-86.8)	87.4 (38.6-155)	120 (70.0-155)	119
	03-04	9.63 (4.83-19.2)	10.0 (3.50-28.0)	32.8 (11.0-85.0)	77.0 (36.0-160)	140 (61.0-210)	285
	05-06	9.14 (3.16-26.5)	5.70 (1.80-50.0)	48.0 (5.00-150)	120 (46.0-280)	180 (88.0-460)	820
	07-08	*	< LOD	1.90 (<LOD-3.80)	3.50 (2.40-7.27)	5.80 (3.50-15.3)	587
Non-Hispanic whites	01-02	16.0 (4.13-62.4)	27.9 (4.71-74.6)	72.7 (33.3-132)	132 (59.6-249)	165 (92.8-366)	333
	03-04	11.5 (5.51-23.8)	11.0 (4.00-33.5)	59.0 (14.0-120)	120 (73.0-230)	180 (110-430)	673
	05-06	5.55 (2.47-12.5)	4.00 (<LOD-15.0)	16.0 (4.30-75.0)	70.0 (15.0-150)	110 (40.0-250)	1291
	07-08	*	< LOD	< LOD	3.30 (1.42-12.0)	7.10 (2.59-31.0)	1349

‡Not measured in Survey years 2009-2010.

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, and 07-08 are 0.232, 2.0, 1.4, and 1.4, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/MTBE_BiomonitoringSummary.html

Blood Methyl-tert-Butyl Ether (MTBE) (2013 – 2014)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3027
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	555
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2472
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1458
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1569
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	494
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	571
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1208
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	792
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	353

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.01.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

‡Not measured in Survey years 2011-2012.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/MTBE_BiomonitoringSummary.html

Blood Methylcyclopentane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3143
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	583
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2560
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1524
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1619
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	483
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	603
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1295
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	781
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	355

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.02.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Nitrobenzene (2003 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	03-04	*	< LOD	< LOD	< LOD	< LOD	1066
	05-06	*	< LOD	< LOD	< LOD	< LOD	3144
	07-08	*	< LOD	< LOD	< LOD	< LOD	2764
	09-10	*	< LOD	< LOD	< LOD	< LOD	3200
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	926
	07-08	*	< LOD	< LOD	< LOD	< LOD	437
	09-10	*	< LOD	< LOD	< LOD	< LOD	539
20-59 years	03-04	*	< LOD	< LOD	< LOD	< LOD	1066
	05-06	*	< LOD	< LOD	< LOD	< LOD	1549
	07-08	*	< LOD	< LOD	< LOD	< LOD	1499
	09-10	*	< LOD	< LOD	< LOD	< LOD	1762
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	669
	07-08	*	< LOD	< LOD	< LOD	< LOD	828
	09-10	*	< LOD	< LOD	< LOD	< LOD	899
Gender							
Males	03-04	*	< LOD	< LOD	< LOD	< LOD	529
	05-06	*	< LOD	< LOD	< LOD	< LOD	1491
	07-08	*	< LOD	< LOD	< LOD	< LOD	1362
	09-10	*	< LOD	< LOD	< LOD	< LOD	1579
Females	03-04	*	< LOD	< LOD	< LOD	< LOD	537
	05-06	*	< LOD	< LOD	< LOD	< LOD	1653
	07-08	*	< LOD	< LOD	< LOD	< LOD	1402
	09-10	*	< LOD	< LOD	< LOD	< LOD	1621
Race/ethnicity							
Mexican Americans	03-04	*	< LOD	< LOD	< LOD	< LOD	206
	05-06	*	< LOD	< LOD	< LOD	< LOD	773
	07-08	*	< LOD	< LOD	< LOD	< LOD	525
	09-10	*	< LOD	< LOD	< LOD	< LOD	624
Non-Hispanic blacks	03-04	*	< LOD	< LOD	< LOD	< LOD	205
	05-06	*	< LOD	< LOD	< LOD	< LOD	816
	07-08	*	< LOD	< LOD	< LOD	< LOD	568
	09-10	*	< LOD	< LOD	< LOD	< LOD	579
Non-Hispanic whites	03-04	*	< LOD	< LOD	< LOD	< LOD	564
	05-06	*	< LOD	< LOD	< LOD	< LOD	1322
	07-08	*	< LOD	< LOD	< LOD	< LOD	1248
	09-10	*	< LOD	< LOD	< LOD	< LOD	1461

Limit of detection (LOD, see Data Analysis section) for Survey years 03-04, 05-06, 07-08, and 09-10 are 0.3, 0.3, 0.32, and 0.32 respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html

Blood Nitrobenzene (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2710
	13-14	*	< LOD	< LOD	< LOD	< LOD	3180
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	500
	13-14	*	< LOD	< LOD	< LOD	< LOD	593
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2210
	13-14	*	< LOD	< LOD	< LOD	< LOD	2587
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1362
	13-14	*	< LOD	< LOD	< LOD	< LOD	1531
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1348
	13-14	*	< LOD	< LOD	< LOD	< LOD	1649
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	292
	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	715
	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	934
	13-14	*	< LOD	< LOD	< LOD	< LOD	1283
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	580
	13-14	*	< LOD	< LOD	< LOD	< LOD	810
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	403
	13-14	*	< LOD	< LOD	< LOD	< LOD	363

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.32 and 0.32.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Nitrobenzene_BiomonitoringSummary.html

Blood Nitromethane (2007 – 2008)

Geometric mean and selected percentiles of whole blood concentrations (in pg/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	07-08	685 (643-729)	668 (618-714)	864 (790-926)	1080 (1020-1160)	1320 (1200-1420)	2766
Age group							
12-19 years	07-08	590 (554-629)	590 (552-628)	717 (676-798)	883 (819-986)	998 (919-1080)	451
20-59 years	07-08	688 (650-728)	675 (628-719)	866 (798-921)	1050 (1000-1120)	1260 (1120-1360)	1495
60 years and older	07-08	739 (670-816)	692 (600-816)	960 (840-1110)	1340 (1210-1490)	1600 (1390-1950)	820
Gender							
Males	07-08	679 (639-722)	664 (620-712)	853 (785-912)	1050 (993-1130)	1260 (1130-1420)	1384
Females	07-08	690 (645-738)	670 (612-721)	871 (786-948)	1100 (1040-1200)	1370 (1260-1480)	1382
Race/ethnicity							
Mexican Americans	07-08	689 (632-752)	667 (606-736)	845 (759-961)	1080 (982-1160)	1260 (1120-1560)	535
Non-Hispanic blacks	07-08	754 (714-796)	720 (673-792)	929 (870-1010)	1220 (1120-1320)	1500 (1340-1640)	545
Non-Hispanic whites	07-08	666 (619-716)	648 (597-704)	834 (756-919)	1040 (993-1150)	1270 (1160-1420)	1289

Limit of detection (LOD, see Data Analysis section) for Survey year 07-08 is 65.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Blood Octane (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3125
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	584
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2541
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1510
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1615
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	478
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	609
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1283
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	775
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	349

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.1.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Styrene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	.080 (.050-.100)	.130 (.090-.200)	.200 (.140-.260)	950
	03-04	*	< LOD	.050 (.044-.061)	.089 (.081-.097)	.120 (.110-.130)	1245
	05-06	*	< LOD	.047 (.042-.056)	.099 (.086-.113)	.135 (.120-.160)	2808
	07-08	*	< LOD	.045 (.036-.056)	.096 (.083-.109)	.130 (.115-.151)	2719
	09-10	*	< LOD	.048 (.032-.080)	.096 (.071-.127)	.132 (.106-.183)	1320
Age group							
12-19 years	05-06	*	< LOD	.039 (.031-.049)	.058 (.050-.071)	.072 (.059-.089)	827
	07-08	*	< LOD	.031 (<LOD-.035)	.047 (.039-.061)	.074 (.049-.085)	448
	09-10	*	< LOD	.037 (<LOD-.091)	.063 (.031-.149)	.081 (.047-.149)	237
20-59 years	01-02	*	< LOD	.080 (.050-.100)	.130 (.090-.200)	.200 (.140-.260)	950
	03-04	*	< LOD	.050 (.044-.061)	.089 (.081-.097)	.120 (.110-.130)	1245
	05-06	*	< LOD	.051 (.044-.065)	.110 (.094-.120)	.150 (.120-.180)	1380
	07-08	*	< LOD	.055 (.041-.076)	.109 (.094-.130)	.151 (.130-.172)	1459
	09-10	*	< LOD	.052 (.035-.086)	.111 (.080-.131)	.146 (.116-.195)	723
60 years and older	05-06	*	< LOD	.041 (.033-.055)	.083 (.072-.110)	.130 (.100-.150)	601
	07-08	*	< LOD	.034 (.031-.039)	.065 (.055-.079)	.094 (.080-.103)	812
	09-10	*	< LOD	.043 (<LOD-.071)	.071 (.043-.168)	.103 (.071-.210)	360
Gender							
Males	01-02	*	< LOD	.080 (.050-.110)	.140 (.100-.230)	.220 (.140-.340)	445
	03-04	*	< LOD	.056 (.045-.068)	.089 (.081-.100)	.120 (.095-.150)	608
	05-06	*	< LOD	.052 (.043-.067)	.110 (.096-.120)	.142 (.120-.170)	1326
	07-08	*	< LOD	.051 (.041-.069)	.102 (.086-.123)	.144 (.117-.169)	1344
	09-10	*	.031 (<LOD-.042)	.053 (.038-.086)	.116 (.092-.127)	.152 (.127-.195)	651
Females	01-02	*	< LOD	.070 (.050-.100)	.120 (.090-.180)	.180 (.120-.260)	505
	03-04	*	< LOD	.048 (.040-.060)	.090 (.074-.100)	.110 (.097-.140)	637
	05-06	*	< LOD	.045 (.038-.052)	.087 (.077-.100)	.129 (.107-.150)	1482
	07-08	*	< LOD	.038 (.031-.051)	.087 (.071-.102)	.127 (.104-.149)	1375
	09-10	*	< LOD	.043 (<LOD-.071)	.074 (.052-.106)	.110 (.071-.176)	669
Race/ethnicity							
Mexican Americans	01-02	*	< LOD	.050 (.030-.070)	.090 (.070-.110)	.120 (.090-.470)	225
	03-04	*	< LOD	< LOD	.049 (.033-.066)	.062 (.048-.100)	241
	05-06	*	< LOD	.035 (<LOD-.047)	.060 (.042-.092)	.092 (.064-.110)	603
	07-08	*	< LOD	.030 (<LOD-.035)	.049 (.042-.060)	.067 (.055-.084)	510
	09-10	*	< LOD	.042 (.033-.051)	.067 (.057-.079)	.083 (.069-.122)	379
Non-Hispanic blacks	01-02	*	.040 (<LOD-.080)	.100 (.040-.180)	.180 (.110-.350)	.300 (.170-1.00)	192
	03-04	*	< LOD	.060 (.047-.077)	.100 (.077-.130)	.130 (.110-.160)	264
	05-06	*	< LOD	.056 (.047-.064)	.100 (.079-.120)	.145 (.115-.180)	781
	07-08	*	< LOD	.047 (.040-.055)	.098 (.077-.112)	.137 (.110-.192)	554
	09-10	*	< LOD	.051 (.031-.100)	.113 (.042-.318)	.168 (.054-.493)	204
Non-Hispanic whites	01-02	*	.030 (<LOD-.050)	.080 (.050-.110)	.130 (.090-.210)	.200 (.130-.260)	462
	03-04	*	< LOD	.056 (.046-.067)	.096 (.083-.110)	.130 (.110-.140)	646
	05-06	*	< LOD	.049 (.043-.058)	.103 (.087-.120)	.140 (.120-.174)	1217
	07-08	*	< LOD	.049 (.037-.069)	.104 (.090-.118)	.143 (.127-.158)	1218
	09-10	*	.030 (<LOD-.049)	.053 (.034-.097)	.108 (.080-.132)	.150 (.116-.205)	507

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.03, 0.03, 0.03, 0.03, and 0.03, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Blood Tetrachloroethene (Perchloroethylene) (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.150)	.190 (.130-.260)	978
	03-04	*	< LOD	< LOD	.076 (.060-.097)	.140 (.091-.300)	1317
	05-06	*	< LOD	< LOD	.070 (.056-.088)	.126 (.098-.170)	2940
	07-08	*	< LOD	< LOD	.056 (.049-.061)	.094 (.075-.125)	2735
	09-10	*	< LOD	< LOD	.062 (.051-.076)	.099 (.081-.118)	3302
Age group							
12-19 years	05-06	*	< LOD	< LOD	.049 (<LOD-.062)	.079 (.057-.106)	865
	07-08	*	< LOD	< LOD	< LOD	.066 (<LOD-.082)	446
	09-10	*	< LOD	< LOD	< LOD	.055 (<LOD-.061)	570
20-59 years	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.150)	.190 (.130-.260)	978
	03-04	*	< LOD	< LOD	.076 (.060-.097)	.140 (.091-.300)	1317
	05-06	*	< LOD	< LOD	.074 (.056-.100)	.130 (.098-.199)	1458
	07-08	*	< LOD	< LOD	.056 (.050-.066)	.102 (.076-.158)	1482
	09-10	*	< LOD	< LOD	.066 (.055-.078)	.104 (.080-.127)	1811
60 years and older	05-06	*	< LOD	< LOD	.071 (.054-.092)	.113 (.092-.190)	617
	07-08	*	< LOD	< LOD	.057 (<LOD-.070)	.095 (.065-.151)	806
	09-10	*	< LOD	< LOD	.071 (<LOD-.093)	.116 (.082-.175)	921
Gender							
Males	01-02	*	< LOD	.050 (<LOD-.060)	.110 (.070-.170)	.210 (.170-.340)	457
	03-04	*	< LOD	< LOD	.082 (.060-.140)	.230 (.097-.410)	639
	05-06	*	< LOD	< LOD	.085 (.062-.126)	.172 (.113-.300)	1404
	07-08	*	< LOD	< LOD	.059 (.053-.071)	.136 (.095-.191)	1351
	09-10	*	< LOD	< LOD	.068 (.055-.088)	.113 (.089-.164)	1629
Females	01-02	*	< LOD	.050 (<LOD-.060)	.100 (.070-.140)	.150 (.100-.220)	521
	03-04	*	< LOD	< LOD	.069 (.050-.091)	.120 (.085-.180)	678
	05-06	*	< LOD	< LOD	.056 (.049-.071)	.090 (.070-.130)	1536
	07-08	*	< LOD	< LOD	.050 (<LOD-.059)	.073 (.061-.112)	1384
	09-10	*	< LOD	< LOD	.055 (<LOD-.072)	.085 (.072-.104)	1673
Race/ethnicity							
Mexican Americans	01-02	*	< LOD	< LOD	.060 (<LOD-.070)	.070 (.060-.230)	226
	03-04	*	< LOD	< LOD	.049 (<LOD-.097)	.100 (.054-.180)	248
	05-06	*	< LOD	< LOD	.069 (.056-.074)	.130 (.073-.284)	713
	07-08	*	< LOD	< LOD	.061 (<LOD-.081)	.112 (.072-.190)	544
	09-10	*	< LOD	< LOD	.051 (<LOD-.063)	.089 (.056-.142)	669
Non-Hispanic blacks	01-02	*	< LOD	< LOD	.070 (.050-.110)	.110 (.060-.190)	195
	03-04	*	< LOD	< LOD	.086 (.050-.220)	.220 (.082-.360)	284
	05-06	*	< LOD	< LOD	.074 (.057-.112)	.120 (.069-.280)	776
	07-08	*	< LOD	< LOD	.060 (<LOD-.095)	.106 (.074-.149)	549
	09-10	*	< LOD	< LOD	.058 (<LOD-.078)	.100 (.061-.128)	590
Non-Hispanic whites	01-02	*	< LOD	.050 (<LOD-.070)	.110 (.090-.170)	.210 (.150-.260)	487
	03-04	*	< LOD	< LOD	.072 (.060-.091)	.140 (.085-.330)	686
	05-06	*	< LOD	< LOD	.070 (.053-.090)	.130 (.092-.180)	1229
	07-08	*	< LOD	< LOD	.053 (<LOD-.059)	.080 (.069-.112)	1219
	09-10	*	< LOD	< LOD	.063 (.051-.077)	.103 (.077-.130)	1473

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.048, 0.048, 0.048, 0.048, and 0.048, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood Tetrachloroethene (Perchloroethylene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.066 (.057-.091)	.125 (.097-.152)	2636
	13-14	*	< LOD	< LOD	< LOD	.083 (.064-.104)	2970
Age group							
12-19 years	11-12	*	< LOD	< LOD	.055 (<LOD-.121)	.121 (.055-.201)	500
	13-14	*	< LOD	< LOD	< LOD	.053 (<LOD-.069)	556
20 years and older	11-12	*	< LOD	< LOD	.067 (.061-.089)	.125 (.098-.159)	2136
	13-14	*	< LOD	< LOD	< LOD	.086 (.066-.127)	2414
Gender							
Males	11-12	*	< LOD	< LOD	.083 (.055-.111)	.139 (.107-.271)	1327
	13-14	*	< LOD	< LOD	.049 (<LOD-.063)	.091 (.062-.169)	1439
Females	11-12	*	< LOD	< LOD	.062 (.053-.082)	.109 (.073-.139)	1309
	13-14	*	< LOD	< LOD	< LOD	.076 (.050-.103)	1531
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	.072 (.050-.192)	294
	13-14	*	< LOD	< LOD	< LOD	.056 (<LOD-.064)	481
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.067 (.054-.086)	.112 (.082-.201)	674
	13-14	*	< LOD	< LOD	< LOD	.066 (<LOD-.108)	549
Non-Hispanic whites	11-12	*	< LOD	< LOD	.077 (.059-.109)	.128 (.097-.165)	935
	13-14	*	< LOD	< LOD	.050 (<LOD-.066)	.091 (.070-.169)	1198
All Hispanics	11-12	*	< LOD	< LOD	.053 (<LOD-.065)	.088 (.065-.145)	543
	13-14	*	< LOD	< LOD	< LOD	.061 (<LOD-.096)	775
Asians	11-12	*	< LOD	< LOD	.057 (<LOD-.103)	.100 (.057-.182)	401
	13-14	*	< LOD	< LOD	< LOD	< LOD	345

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.048 and 0.048.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood Tetrachloromethane (Carbon tetrachloride) (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.020 (.010-.050)	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	1362
	05-06	*	< LOD	< LOD	< LOD	< LOD	2979
	07-08	*	< LOD	< LOD	< LOD	< LOD	2812
	09-10	*	< LOD	< LOD	< LOD	< LOD	3240
Age group 12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	882
	07-08	*	< LOD	< LOD	< LOD	< LOD	456
	09-10	*	< LOD	< LOD	< LOD	< LOD	561
	20-59 years	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.020 (.010-.050)	742
	03-04	*	< LOD	< LOD	< LOD	< LOD	1362
	05-06	*	< LOD	< LOD	< LOD	< LOD	1476
	07-08	*	< LOD	< LOD	< LOD	< LOD	1526
	09-10	*	< LOD	< LOD	< LOD	< LOD	1767
	60 years and older	*	< LOD	< LOD	< LOD	< LOD	621
	07-08	*	< LOD	< LOD	< LOD	< LOD	830
	09-10	*	< LOD	< LOD	< LOD	< LOD	912
Gender							
Males	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.010 (.010-.040)	364
	03-04	*	< LOD	< LOD	< LOD	< LOD	667
	05-06	*	< LOD	< LOD	< LOD	< LOD	1419
	07-08	*	< LOD	< LOD	< LOD	< LOD	1388
	09-10	*	< LOD	< LOD	< LOD	< LOD	1599
Females	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.090)	.040 (.010-.080)	378
	03-04	*	< LOD	< LOD	< LOD	< LOD	695
	05-06	*	< LOD	< LOD	< LOD	< LOD	1560
	07-08	*	< LOD	< LOD	< LOD	< LOD	1424
	09-10	*	< LOD	< LOD	< LOD	< LOD	1641
Race/ethnicity							
Mexican Americans	01-02	*	< LOD	< LOD	.010 (<LOD-.750)	.020 (.010-.050)	193
	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	740
	07-08	*	< LOD	< LOD	< LOD	< LOD	555
	09-10	*	< LOD	< LOD	< LOD	< LOD	651
Non-Hispanic blacks	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.020)	.010 (<LOD-.020)	132
	03-04	*	< LOD	< LOD	< LOD	< LOD	299
	05-06	*	< LOD	< LOD	< LOD	< LOD	779
	07-08	*	< LOD	< LOD	< LOD	< LOD	562
	09-10	*	< LOD	< LOD	< LOD	< LOD	576
Non-Hispanic whites	01-02	*	< LOD	.010 (<LOD-.010)	.010 (<LOD-.140)	.030 (.010-.080)	366
	03-04	*	< LOD	< LOD	< LOD	< LOD	692
	05-06	*	< LOD	< LOD	< LOD	< LOD	1237
	07-08	*	< LOD	< LOD	< LOD	< LOD	1249
	09-10	*	< LOD	< LOD	< LOD	< LOD	1460

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.01, 0.005, 0.005, 0.005, and 0.005, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood Tetrachloromethane (Carbon tetrachloride) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2720
	13-14	*	< LOD	< LOD	< LOD	< LOD	3199
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	511
	13-14	*	< LOD	< LOD	< LOD	< LOD	598
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2209
	13-14	*	< LOD	< LOD	< LOD	< LOD	2601
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1357
	13-14	*	< LOD	< LOD	< LOD	< LOD	1543
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1363
	13-14	*	< LOD	< LOD	< LOD	< LOD	1656
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	295
	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	738
	13-14	*	< LOD	< LOD	< LOD	< LOD	614
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	916
	13-14	*	< LOD	< LOD	< LOD	< LOD	1304
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	580
	13-14	*	< LOD	< LOD	< LOD	< LOD	808
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	405
	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.005 and 0.005.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/OtherHalogenatedSolvents_BiomonitoringSummary.html

Blood Tetrahydrofuran (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3077
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	579
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2498
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1489
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1588
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	482
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	592
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1260
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	772
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	347

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.125.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Toluene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	.156 (.122-.198)	.160 (.120-.220)	.340 (.260-.430)	.670 (.480-.950)	1.06 (.700-1.43)	954
	03-04	.114 (.100-.129)	.096 (.087-.110)	.220 (.180-.260)	.430 (.380-.550)	.680 (.560-.880)	1336
	05-06	.137 (.123-.152)	.120 (.110-.130)	.230 (.200-.262)	.550 (.481-.640)	.814 (.702-.937)	3050
	07-08	.103 (.090-.119)	.083 (.072-.098)	.192 (.148-.256)	.511 (.411-.608)	.735 (.634-.888)	2731
	09-10	.085 (.075-.095)	.065 (.059-.073)	.160 (.129-.205)	.533 (.428-.623)	.830 (.634-1.01)	2185
Age group							
12-19 years	05-06	.110 (.098-.122)	.100 (.094-.120)	.170 (.150-.180)	.280 (.240-.310)	.400 (.300-.610)	907
	07-08	.067 (.057-.080)	.061 (.053-.073)	.100 (.078-.133)	.205 (.141-.287)	.318 (.228-.388)	439
	09-10	.052 (.042-.065)	.050 (.037-.066)	.080 (.061-.132)	.175 (.122-.250)	.259 (.178-.440)	374
20-59 years	01-02	.156 (.122-.198)	.160 (.120-.220)	.340 (.260-.430)	.670 (.480-.950)	1.06 (.700-1.43)	954
	03-04	.114 (.100-.129)	.096 (.087-.110)	.220 (.180-.260)	.430 (.380-.550)	.680 (.560-.880)	1336
	05-06	.147 (.133-.163)	.120 (.110-.137)	.260 (.210-.340)	.594 (.505-.720)	.900 (.730-1.10)	1505
	07-08	.115 (.098-.135)	.090 (.076-.110)	.257 (.174-.339)	.589 (.508-.692)	.839 (.702-.976)	1483
	09-10	.093 (.081-.106)	.069 (.064-.078)	.201 (.150-.285)	.597 (.485-.737)	.926 (.717-1.06)	1206
60 years and older	05-06	.124 (.100-.154)	.114 (.097-.138)	.190 (.167-.230)	.520 (.370-.600)	.720 (.600-.814)	638
	07-08	.094 (.084-.105)	.078 (.070-.091)	.143 (.126-.173)	.370 (.277-.479)	.610 (.424-.742)	809
	09-10	.084 (.071-.100)	.067 (.054-.087)	.138 (.101-.232)	.454 (.244-.647)	.784 (.516-1.11)	605
Gender							
Males	01-02	.165 (.130-.209)	.170 (.120-.230)	.360 (.260-.520)	.780 (.580-1.06)	1.22 (.850-1.43)	450
	03-04	.128 (.112-.148)	.110 (.096-.130)	.250 (.190-.310)	.500 (.380-.660)	.730 (.590-1.10)	647
	05-06	.152 (.139-.166)	.130 (.120-.140)	.280 (.240-.330)	.640 (.550-.720)	.920 (.790-1.10)	1441
	07-08	.118 (.103-.135)	.091 (.078-.113)	.256 (.191-.311)	.563 (.483-.663)	.816 (.689-.928)	1370
	09-10	.095 (.083-.108)	.070 (.064-.083)	.205 (.148-.294)	.579 (.466-.750)	.978 (.659-1.13)	1088
Females	01-02	.147 (.114-.190)	.150 (.110-.220)	.320 (.240-.390)	.550 (.400-.740)	.810 (.530-1.63)	504
	03-04	.101 (.086-.118)	.085 (.070-.100)	.190 (.150-.230)	.410 (.340-.500)	.580 (.480-.750)	689
	05-06	.124 (.107-.144)	.110 (.097-.130)	.190 (.170-.230)	.470 (.380-.550)	.690 (.550-.880)	1609
	07-08	.091 (.078-.106)	.074 (.065-.087)	.151 (.119-.209)	.444 (.297-.589)	.679 (.533-.853)	1360
	09-10	.076 (.066-.088)	.061 (.051-.070)	.129 (.106-.165)	.437 (.316-.593)	.726 (.555-.937)	1097
Race/ethnicity							
Mexican Americans	01-02	.136 (.106-.176)	.140 (.080-.210)	.270 (.210-.340)	.550 (.400-.980)	.990 (.500-1.30)	219
	03-04	.084 (.074-.096)	.076 (.064-.091)	.120 (.100-.170)	.280 (.170-.410)	.400 (.310-.620)	253
	05-06	.110 (.097-.125)	.110 (.096-.120)	.160 (.140-.170)	.240 (.220-.290)	.340 (.290-.460)	737
	07-08	.079 (.068-.093)	.075 (.059-.094)	.117 (.106-.142)	.220 (.169-.292)	.339 (.253-.409)	539
	09-10	.062 (.052-.073)	.050 (.042-.061)	.100 (.083-.131)	.230 (.181-.323)	.467 (.275-.694)	494
Non-Hispanic blacks	01-02	.137 (.089-.210)	.150 (.070-.200)	.310 (.200-.460)	.690 (.390-1.19)	1.15 (.660-1.69)	194
	03-04	.105 (.077-.144)	.095 (.070-.130)	.200 (.130-.330)	.440 (.290-.620)	.620 (.480-.710)	297
	05-06	.139 (.120-.161)	.120 (.099-.140)	.230 (.190-.290)	.450 (.370-.550)	.670 (.550-.830)	796
	07-08	.108 (.097-.120)	.083 (.076-.097)	.220 (.179-.265)	.463 (.380-.554)	.663 (.486-.899)	567
	09-10	.091 (.067-.124)	.066 (.047-.112)	.151 (.110-.251)	.493 (.340-.800)	.896 (.522-1.46)	410
Non-Hispanic whites	01-02	.165 (.125-.217)	.170 (.120-.240)	.350 (.270-.450)	.710 (.450-1.12)	1.14 (.710-1.63)	467
	03-04	.123 (.110-.139)	.100 (.092-.120)	.240 (.210-.280)	.500 (.400-.590)	.750 (.590-.940)	685
	05-06	.144 (.125-.166)	.130 (.110-.140)	.260 (.210-.330)	.600 (.510-.710)	.880 (.760-.990)	1291
	07-08	.110 (.094-.128)	.086 (.073-.102)	.223 (.162-.310)	.582 (.479-.693)	.832 (.706-.974)	1200
	09-10	.093 (.080-.109)	.070 (.064-.085)	.199 (.143-.275)	.597 (.464-.755)	.927 (.657-1.11)	1006

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.025, 0.025, 0.025, 0.025, and 0.025, respectively.
< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html

Blood Toluene (2013 – 2014)‡

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	.087 (.080-.094)	.066 (.061-.072)	.132 (.117-.149)	.440 (.390-.501)	.707 (.625-.813)	3103
Age group							
12-19 years	13-14	.064 (.056-.073)	.056 (.050-.062)	.087 (.071-.106)	.164 (.125-.261)	.395 (.164-.874)	587
20 years and older	13-14	.091 (.084-.099)	.069 (.062-.075)	.144 (.128-.172)	.480 (.430-.531)	.726 (.653-.833)	2516
Gender							
Males	13-14	.094 (.085-.104)	.070 (.064-.077)	.146 (.128-.177)	.489 (.378-.593)	.801 (.650-.929)	1499
Females	13-14	.081 (.073-.089)	.062 (.056-.070)	.115 (.099-.147)	.421 (.360-.481)	.634 (.574-.704)	1604
Race/ethnicity							
Mexican Americans	13-14	.067 (.059-.077)	.057 (.051-.066)	.091 (.076-.120)	.214 (.163-.283)	.349 (.241-.603)	501
Non-Hispanic blacks	13-14	.101 (.086-.118)	.075 (.059-.098)	.227 (.170-.289)	.506 (.450-.576)	.717 (.620-.880)	602
Non-Hispanic whites	13-14	.091 (.083-.100)	.068 (.062-.074)	.146 (.122-.180)	.502 (.393-.600)	.826 (.685-.913)	1250
All Hispanics	13-14	.072 (.063-.081)	.059 (.054-.067)	.098 (.084-.118)	.240 (.167-.317)	.451 (.326-.585)	796
Asians	13-14	.063 (.056-.072)	.058 (.050-.065)	.082 (.072-.104)	.147 (.122-.267)	.324 (.191-.434)	355

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.025.

‡Not measured in Survey years 2011-2012 because of elevated background levels at the blood collection site.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html

Blood Trichloroethene (Trichloroethylene) (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	< LOD	< LOD	< LOD	922
	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	3178
	07-08	*	< LOD	< LOD	< LOD	< LOD	2952
	09-10	*	< LOD	< LOD	< LOD	< LOD	3342
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	937
	07-08	*	< LOD	< LOD	< LOD	< LOD	473
	09-10	*	< LOD	< LOD	< LOD	< LOD	568
20-59 years	01-02	*	< LOD	< LOD	< LOD	< LOD	922
	03-04	*	< LOD	< LOD	< LOD	< LOD	1228
	05-06	*	< LOD	< LOD	< LOD	< LOD	1562
	07-08	*	< LOD	< LOD	< LOD	< LOD	1592
	09-10	*	< LOD	< LOD	< LOD	< LOD	1840
60 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	679
	07-08	*	< LOD	< LOD	< LOD	< LOD	887
	09-10	*	< LOD	< LOD	< LOD	< LOD	934
Gender							
Males	01-02	*	< LOD	< LOD	< LOD	< LOD	434
	03-04	*	< LOD	< LOD	< LOD	< LOD	604
	05-06	*	< LOD	< LOD	< LOD	< LOD	1504
	07-08	*	< LOD	< LOD	< LOD	< LOD	1466
	09-10	*	< LOD	< LOD	< LOD	< LOD	1647
Females	01-02	*	< LOD	< LOD	< LOD	< LOD	488
	03-04	*	< LOD	< LOD	< LOD	< LOD	624
	05-06	*	< LOD	< LOD	< LOD	< LOD	1674
	07-08	*	< LOD	< LOD	< LOD	< LOD	1486
	09-10	*	< LOD	< LOD	< LOD	< LOD	1695
Race/ethnicity							
Mexican Americans	01-02	*	< LOD	< LOD	< LOD	< LOD	228
	03-04	*	< LOD	< LOD	< LOD	< LOD	224
	05-06	*	< LOD	< LOD	< LOD	< LOD	773
	07-08	*	< LOD	< LOD	< LOD	< LOD	572
	09-10	*	< LOD	< LOD	< LOD	< LOD	666
Non-Hispanic blacks	01-02	*	< LOD	< LOD	< LOD	< LOD	191
	03-04	*	< LOD	< LOD	< LOD	< LOD	266
	05-06	*	< LOD	< LOD	< LOD	< LOD	828
	07-08	*	< LOD	< LOD	< LOD	< LOD	583
	09-10	*	< LOD	< LOD	< LOD	< LOD	598
Non-Hispanic whites	01-02	*	< LOD	< LOD	< LOD	< LOD	441
	03-04	*	< LOD	< LOD	< LOD	< LOD	644
	05-06	*	< LOD	< LOD	< LOD	< LOD	1341
	07-08	*	< LOD	< LOD	< LOD	< LOD	1329
	09-10	*	< LOD	< LOD	< LOD	< LOD	1520

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.012, 0.012, 0.012, 0.012, and 0.012, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood Trichloroethene (Trichloroethylene) (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2694
	13-14	*	< LOD	< LOD	< LOD	< LOD	3103
Age group							
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	496
	13-14	*	< LOD	< LOD	< LOD	< LOD	581
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	2198
	13-14	*	< LOD	< LOD	< LOD	< LOD	2522
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1343
	13-14	*	< LOD	< LOD	< LOD	< LOD	1492
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1351
	13-14	*	< LOD	< LOD	< LOD	< LOD	1611
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	284
	13-14	*	< LOD	< LOD	< LOD	< LOD	495
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	724
	13-14	*	< LOD	< LOD	< LOD	< LOD	600
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	927
	13-14	*	< LOD	< LOD	< LOD	< LOD	1256
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	572
	13-14	*	< LOD	< LOD	< LOD	< LOD	795
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	389
	13-14	*	< LOD	< LOD	< LOD	< LOD	344

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.012 and 0.012.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Blood $\alpha\alpha$ -Trifluorotoluene (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3204
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	599
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2605
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1546
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1658
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	505
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	615
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1305
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	810
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	364

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.04.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood Vinyl Bromide (2013 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	13-14	*	< LOD	< LOD	< LOD	< LOD	3152
Age group							
12-19 years	13-14	*	< LOD	< LOD	< LOD	< LOD	586
20 years and older	13-14	*	< LOD	< LOD	< LOD	< LOD	2566
Gender							
Males	13-14	*	< LOD	< LOD	< LOD	< LOD	1523
Females	13-14	*	< LOD	< LOD	< LOD	< LOD	1629
Race/ethnicity							
Mexican Americans	13-14	*	< LOD	< LOD	< LOD	< LOD	501
Non-Hispanic blacks	13-14	*	< LOD	< LOD	< LOD	< LOD	601
Non-Hispanic whites	13-14	*	< LOD	< LOD	< LOD	< LOD	1277
All Hispanics	13-14	*	< LOD	< LOD	< LOD	< LOD	803
Asians	13-14	*	< LOD	< LOD	< LOD	< LOD	363

Limit of detection (LOD, see Data Analysis section) for Survey year 13-14 is 0.045.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Blood m/p-Xylene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	.156 (.124-.198)	.150 (.110-.200)	.280 (.190-.430)	.500 (.370-.690)	.670 (.500-.890)	962
	03-04	.136 (.123-.150)	.130 (.120-.150)	.200 (.190-.210)	.280 (.260-.300)	.340 (.310-.400)	1346
	05-06	.132 (.122-.143)	.120 (.110-.130)	.190 (.170-.210)	.301 (.270-.330)	.410 (.360-.450)	3133
	07-08	.079 (.069-.090)	.072 (.061-.086)	.130 (.108-.156)	.231 (.200-.281)	.343 (.281-.410)	2823
	09-10	.087 (.072-.104)	.072 (.060-.088)	.151 (.123-.185)	.307 (.246-.376)	.466 (.359-.693)	3138
Age group 12-19 years	05-06	.118 (.106-.130)	.120 (.110-.120)	.160 (.150-.170)	.220 (.190-.270)	.330 (.240-.380)	923
	07-08	.067 (.059-.076)	.061 (.052-.074)	.099 (.080-.125)	.181 (.138-.205)	.216 (.182-.282)	447
	09-10	.066 (.054-.080)	.061 (.047-.073)	.097 (.080-.122)	.169 (.143-.218)	.261 (.202-.324)	529
	20-59 years	.156 (.124-.198)	.150 (.110-.200)	.280 (.190-.430)	.500 (.370-.690)	.670 (.500-.890)	962
	03-04	.136 (.123-.150)	.130 (.120-.150)	.200 (.190-.210)	.280 (.260-.300)	.340 (.310-.400)	1346
20-59 years	05-06	.137 (.127-.147)	.130 (.120-.140)	.200 (.180-.220)	.320 (.280-.350)	.430 (.360-.480)	1542
	07-08	.083 (.072-.097)	.076 (.065-.089)	.143 (.116-.173)	.256 (.210-.308)	.379 (.290-.468)	1520
	09-10	.093 (.076-.114)	.077 (.062-.098)	.171 (.130-.215)	.343 (.264-.431)	.525 (.395-1.02)	1732
	60 years and older	.126 (.112-.142)	.120 (.100-.130)	.184 (.150-.220)	.303 (.240-.360)	.400 (.335-.463)	668
	07-08	.073 (.063-.085)	.068 (.055-.082)	.113 (.097-.134)	.209 (.179-.243)	.308 (.255-.361)	854
Gender Males	09-10	.081 (.068-.097)	.069 (.058-.084)	.139 (.107-.170)	.260 (.207-.347)	.399 (.307-.580)	877
	01-02	.155 (.121-.200)	.140 (.110-.190)	.280 (.180-.440)	.510 (.350-.700)	.700 (.500-.890)	455
	03-04	.149 (.134-.166)	.140 (.130-.170)	.220 (.200-.230)	.290 (.270-.320)	.380 (.300-.490)	654
	05-06	.145 (.135-.157)	.130 (.130-.147)	.220 (.190-.240)	.340 (.310-.370)	.460 (.430-.490)	1480
	07-08	.088 (.077-.101)	.080 (.068-.095)	.153 (.128-.178)	.260 (.224-.308)	.392 (.305-.470)	1395
Females	09-10	.095 (.079-.115)	.078 (.064-.098)	.175 (.139-.219)	.334 (.273-.430)	.510 (.416-.799)	1546
	01-02	.157 (.124-.199)	.150 (.110-.220)	.270 (.190-.410)	.480 (.360-.650)	.650 (.460-.890)	507
	03-04	.124 (.112-.138)	.130 (.110-.140)	.180 (.160-.200)	.270 (.240-.300)	.340 (.290-.390)	692
	05-06	.120 (.109-.132)	.110 (.100-.123)	.170 (.151-.197)	.260 (.220-.320)	.340 (.300-.420)	1653
	07-08	.071 (.061-.083)	.066 (.054-.080)	.110 (.091-.142)	.201 (.169-.253)	.296 (.240-.362)	1426
Race/ethnicity Mexican Americans	09-10	.079 (.065-.096)	.067 (.057-.082)	.133 (.106-.162)	.254 (.205-.347)	.414 (.329-.613)	1592
	01-02	.134 (.097-.184)	.130 (.090-.180)	.240 (.150-.370)	.400 (.290-.540)	.540 (.380-1.10)	223
	03-04	.132 (.109-.160)	.120 (.110-.150)	.180 (.140-.230)	.250 (.220-.320)	.360 (.260-.490)	257
	05-06	.108 (.093-.125)	.110 (.098-.120)	.150 (.130-.170)	.220 (.170-.290)	.270 (.220-.370)	755
	07-08	.075 (.066-.084)	.071 (.061-.085)	.104 (.094-.120)	.181 (.134-.240)	.260 (.210-.410)	548
Non-Hispanic blacks	09-10	.075 (.055-.102)	.067 (.049-.092)	.116 (.082-.175)	.206 (.147-.319)	.315 (.214-.829)	645
	01-02	.147 (.107-.202)	.140 (.090-.220)	.280 (.160-.460)	.470 (.330-.850)	.590 (.420-1.08)	198
	03-04	.117 (.094-.146)	.120 (.099-.140)	.170 (.140-.220)	.270 (.210-.330)	.330 (.260-.450)	297
	05-06	.131 (.120-.144)	.120 (.110-.140)	.190 (.170-.210)	.280 (.250-.320)	.350 (.320-.392)	823
	07-08	.085 (.070-.103)	.082 (.063-.103)	.138 (.120-.160)	.233 (.180-.294)	.326 (.242-.420)	571
Non-Hispanic whites	09-10	.086 (.058-.127)	.069 (.050-.109)	.145 (.098-.228)	.327 (.203-.593)	.591 (.234-5.34)	538
	01-02	.163 (.124-.214)	.160 (.110-.220)	.300 (.190-.480)	.520 (.370-.740)	.700 (.510-.960)	468
	03-04	.141 (.128-.155)	.140 (.130-.150)	.210 (.190-.220)	.290 (.270-.310)	.350 (.330-.400)	690
	05-06	.136 (.125-.147)	.130 (.120-.140)	.200 (.180-.220)	.324 (.280-.350)	.430 (.368-.480)	1323
	07-08	.080 (.069-.094)	.072 (.058-.088)	.138 (.109-.173)	.248 (.209-.300)	.371 (.290-.457)	1265
	09-10	.092 (.077-.110)	.076 (.060-.096)	.167 (.138-.205)	.339 (.263-.416)	.484 (.392-.634)	1411

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.034, 0.034, 0.034, 0.034, and 0.034, respectively.
< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Blood m-/p-Xylene (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	.071 (.063-.079)	.063 (.056-.073)	.106 (.100-.122)	.225 (.187-.264)	.326 (.278-.365)	2579
	13-14	.058 (.052-.064)	.048 (.042-.055)	.094 (.084-.111)	.205 (.188-.225)	.297 (.261-.340)	3174
Age group							
12-19 years	11-12	.067 (.055-.083)	.063 (.051-.082)	.098 (.082-.128)	.165 (.128-.194)	.223 (.169-.335)	486
	13-14	*	.038 (<LOD-.046)	.068 (.053-.085)	.116 (.096-.163)	.206 (.145-.308)	596
20 years and older	11-12	.071 (.064-.079)	.063 (.056-.073)	.108 (.102-.124)	.238 (.197-.278)	.334 (.279-.386)	2093
	13-14	.060 (.054-.066)	.049 (.044-.057)	.101 (.088-.120)	.213 (.195-.238)	.309 (.270-.351)	2578
Gender							
Males	11-12	.077 (.070-.086)	.070 (.062-.082)	.116 (.104-.144)	.249 (.191-.295)	.355 (.295-.424)	1292
	13-14	.063 (.057-.069)	.052 (.046-.060)	.105 (.093-.124)	.234 (.190-.268)	.339 (.275-.454)	1532
Females	11-12	.065 (.057-.075)	.058 (.050-.069)	.099 (.083-.122)	.218 (.177-.248)	.299 (.260-.350)	1287
	13-14	.054 (.048-.060)	.044 (.037-.052)	.084 (.073-.105)	.188 (.164-.210)	.260 (.229-.291)	1642
Race/ethnicity							
Mexican Americans	11-12	.066 (.058-.075)	.063 (.052-.075)	.095 (.081-.104)	.152 (.109-.191)	.250 (.136-.349)	266
	13-14	*	.040 (<LOD-.056)	.070 (.051-.100)	.139 (.105-.168)	.204 (.156-.309)	504
Non-Hispanic blacks	11-12	.061 (.053-.071)	.058 (.047-.071)	.099 (.089-.116)	.184 (.153-.217)	.263 (.204-.341)	662
	13-14	.059 (.051-.067)	.048 (.038-.058)	.117 (.091-.133)	.220 (.187-.243)	.273 (.245-.367)	611
Non-Hispanic whites	11-12	.076 (.067-.086)	.066 (.057-.080)	.116 (.102-.144)	.259 (.215-.297)	.350 (.297-.386)	909
	13-14	.062 (.056-.069)	.050 (.045-.059)	.105 (.088-.133)	.227 (.190-.269)	.334 (.279-.455)	1287
All Hispanics	11-12	.061 (.056-.068)	.057 (.050-.067)	.088 (.081-.099)	.149 (.113-.184)	.212 (.151-.325)	551
	13-14	*	.043 (<LOD-.054)	.071 (.057-.097)	.145 (.113-.171)	.212 (.179-.251)	806
Asians	11-12	.059 (.053-.065)	.056 (.049-.064)	.084 (.074-.095)	.122 (.113-.150)	.181 (.141-.204)	374
	13-14	*	.037 (<LOD-.047)	.061 (.048-.082)	.125 (.082-.159)	.179 (.134-.248)	362

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.034 and 0.034.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Blood o-Xylene (2001 – 2010)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	01-02	*	< LOD	.070 (.050-.080)	.100 (.080-.130)	.130 (.110-.180)	981
	03-04	*	< LOD	.051 (<LOD-.057)	.072 (.066-.079)	.090 (.081-.097)	1365
	05-06	.037 (.034-.040)	.035 (.032-.039)	.053 (.047-.061)	.083 (.072-.094)	.110 (.094-.120)	3153
	07-08	*	< LOD	.039 (.033-.047)	.062 (.051-.076)	.086 (.068-.128)	2835
	09-10	*	< LOD	.043 (.035-.051)	.082 (.064-.105)	.129 (.095-.276)	2944
Age group							
12-19 years	05-06	.032 (.030-.034)	.031 (.029-.034)	.044 (.040-.049)	.062 (.053-.075)	.088 (.072-.100)	929
	07-08	*	< LOD	.033 (.026-.044)	.048 (.039-.080)	.066 (.048-.180)	457
	09-10	*	< LOD	.030 (.025-.036)	.054 (.041-.067)	.089 (.059-.122)	523
20-59 years	01-02	*	< LOD	.070 (.050-.080)	.100 (.080-.130)	.130 (.110-.180)	981
	03-04	*	< LOD	.051 (<LOD-.057)	.072 (.066-.079)	.090 (.081-.097)	1365
	05-06	.038 (.034-.041)	.036 (.032-.039)	.055 (.048-.062)	.083 (.073-.094)	.110 (.093-.120)	1547
	07-08	*	.025 (<LOD-.030)	.040 (.034-.048)	.065 (.053-.079)	.086 (.069-.140)	1524
	09-10	*	.024 (<LOD-.030)	.046 (.037-.055)	.092 (.072-.119)	.165 (.102-.415)	1600
60 years and older	05-06	.038 (.033-.044)	.036 (.032-.042)	.054 (.046-.065)	.092 (.065-.115)	.115 (.094-.150)	677
	07-08	*	< LOD	.038 (.031-.049)	.061 (.052-.078)	.091 (.068-.118)	854
	09-10	*	< LOD	.042 (.032-.050)	.074 (.055-.096)	.107 (.076-.228)	821
Gender							
Males	01-02	*	< LOD	.070 (.050-.090)	.110 (.080-.140)	.150 (.110-.180)	465
	03-04	*	< LOD	.057 (.050-.060)	.074 (.068-.084)	.096 (.084-.110)	667
	05-06	.040 (.036-.045)	.038 (.033-.041)	.058 (.050-.070)	.092 (.082-.100)	.120 (.100-.140)	1487
	07-08	*	.026 (<LOD-.031)	.042 (.037-.048)	.069 (.059-.083)	.098 (.078-.146)	1407
	09-10	*	.025 (<LOD-.029)	.047 (.040-.055)	.089 (.072-.112)	.152 (.100-.276)	1452
Females	01-02	*	< LOD	.060 (.050-.080)	.100 (.070-.130)	.120 (.100-.180)	516
	03-04	*	< LOD	< LOD	.067 (.059-.076)	.085 (.074-.095)	698
	05-06	.034 (.032-.037)	.034 (.031-.036)	.049 (.044-.054)	.072 (.060-.086)	.094 (.078-.110)	1666
	07-08	*	< LOD	.036 (.029-.044)	.056 (.046-.070)	.076 (.056-.120)	1428
	09-10	*	< LOD	.038 (.030-.047)	.077 (.053-.103)	.118 (.083-.343)	1492
Race/ethnicity							
Mexican Americans	01-02	*	< LOD	.060 (<LOD-.080)	.090 (.080-.110)	.120 (.090-.270)	227
	03-04	*	< LOD	.052 (<LOD-.067)	.074 (.067-.080)	.100 (.075-.130)	265
	05-06	.030 (.027-.033)	.029 (.026-.031)	.040 (.036-.045)	.057 (.050-.069)	.079 (.062-.097)	777
	07-08	*	.025 (<LOD-.028)	.032 (.030-.038)	.060 (.038-.140)	.121 (.052-.210)	561
	09-10	*	< LOD	.031 (<LOD-.045)	.054 (.037-.092)	.090 (.054-.415)	603
Non-Hispanic blacks	01-02	*	< LOD	.050 (<LOD-.070)	.100 (.080-.110)	.110 (.100-.160)	197
	03-04	*	< LOD	< LOD	.065 (.055-.078)	.084 (.068-.100)	301
	05-06	.035 (.033-.038)	.034 (.031-.038)	.049 (.045-.054)	.073 (.064-.077)	.088 (.078-.100)	824
	07-08	*	.027 (<LOD-.035)	.041 (.032-.054)	.066 (.045-.130)	.100 (.054-.470)	573
	09-10	*	< LOD	.043 (.031-.057)	.080 (.050-.207)	.154 (.063-1.70)	548
Non-Hispanic whites	01-02	*	< LOD	.070 (.050-.090)	.110 (.080-.140)	.140 (.110-.180)	483
	03-04	*	< LOD	.052 (<LOD-.058)	.073 (.066-.082)	.090 (.081-.100)	694
	05-06	.039 (.035-.043)	.037 (.033-.041)	.056 (.049-.064)	.087 (.074-.100)	.110 (.096-.130)	1319
	07-08	*	< LOD	.040 (.033-.048)	.063 (.052-.079)	.086 (.069-.117)	1242
	09-10	*	< LOD	.047 (.041-.054)	.091 (.075-.108)	.144 (.104-.262)	1265

Limit of detection (LOD, see Data Analysis section) for Survey years 01-02, 03-04, 05-06, 07-08, and 09-10 are 0.049, 0.049, 0.024, 0.024, and 0.024, respectively.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Blood o-Xylene (2011 – 2014)

Geometric mean and selected percentiles of whole blood concentrations (in ng/mL) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.031 (.027-.036)	.054 (.045-.064)	.077 (.062-.091)	2718
	13-14	*	< LOD	.027 (<LOD-.031)	.049 (.043-.053)	.066 (.059-.075)	3204
Age group							
12-19 years	11-12	*	< LOD	.027 (<LOD-.034)	.043 (.034-.048)	.051 (.043-.067)	517
	13-14	*	< LOD	< LOD	.035 (.028-.042)	.046 (.035-.069)	599
20 years and older	11-12	*	< LOD	.032 (.028-.038)	.056 (.046-.068)	.080 (.065-.093)	2201
	13-14	*	< LOD	.028 (<LOD-.032)	.050 (.045-.054)	.068 (.059-.081)	2605
Gender							
Males	11-12	*	< LOD	.034 (.029-.040)	.058 (.048-.069)	.088 (.068-.097)	1359
	13-14	*	< LOD	.030 (.026-.033)	.051 (.045-.061)	.074 (.060-.088)	1546
Females	11-12	*	< LOD	.028 (.024-.034)	.051 (.040-.060)	.067 (.056-.087)	1359
	13-14	*	< LOD	.025 (<LOD-.030)	.044 (.038-.050)	.059 (.050-.070)	1658
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.028 (.025-.031)	.042 (.033-.059)	.065 (.040-.265)	290
	13-14	*	< LOD	< LOD	.038 (.028-.049)	.055 (.042-.075)	505
Non-Hispanic blacks	11-12	*	< LOD	.029 (<LOD-.033)	.046 (.038-.054)	.061 (.050-.070)	721
	13-14	*	< LOD	.028 (.025-.030)	.049 (.039-.054)	.066 (.051-.081)	615
Non-Hispanic whites	11-12	*	< LOD	.034 (.028-.042)	.058 (.048-.072)	.087 (.068-.097)	946
	13-14	*	< LOD	.029 (.025-.033)	.051 (.044-.060)	.071 (.059-.090)	1305
All Hispanics	11-12	*	< LOD	.026 (.024-.028)	.040 (.033-.050)	.057 (.042-.089)	571
	13-14	*	< LOD	< LOD	.039 (.031-.047)	.052 (.046-.062)	810
Asians	11-12	*	< LOD	< LOD	.033 (.029-.040)	.046 (.035-.054)	398
	13-14	*	< LOD	< LOD	.031 (<LOD-.043)	.048 (.031-.070)	364

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 and 13-14 are 0.024 and 0.024.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (2005 – 2006)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	86.5 (80.1-93.4)	92.2 (82.7-103)	178 (164-195)	315 (291-353)	491 (442-516)	3345
Age group							
12-19 years	05-06	89.8 (75.3-107)	104 (83.1-124)	170 (155-195)	272 (247-319)	368 (319-424)	1031
20 years and older	05-06	86.0 (79.6-92.9)	90.4 (80.7-101)	180 (163-196)	328 (293-362)	499 (446-533)	2311
Gender							
Males	05-06	106 (98.5-113)	113 (102-125)	196 (175-221)	355 (293-437)	516 (446-579)	1589
Females	05-06	71.5 (64.1-79.8)	74.4 (66.2-84.0)	158 (145-172)	286 (258-338)	438 (356-499)	1753
Race/ethnicity							
Mexican Americans	05-06	77.0 (68.6-86.5)	83.3 (74.3-95.9)	152 (128-174)	241 (217-267)	315 (257-406)	819
Non-Hispanic blacks	05-06	137 (125-151)	142 (126-162)	264 (227-292)	438 (387-507)	592 (474-695)	898
Non-Hispanic whites	05-06	82.1 (74.7-90.3)	84.1 (74.5-94.0)	172 (154-192)	306 (276-351)	481 (404-529)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 6.96.

Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (2011 – 2012)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	87.1 (79.9-95.0)	90.4 (84.5-98.6)	178 (163-196)	326 (294-374)	457 (399-560)	2466
Age group							
6-11 years	11-12	69.7 (61.3-79.3)	71.3 (56.2-88.9)	144 (123-165)	236 (198-304)	330 (245-489)	394
12-19 years	11-12	73.7 (58.2-93.3)	85.0 (63.5-98.6)	145 (111-187)	256 (198-296)	382 (290-437)	384
20 years and older	11-12	91.6 (83.3-101)	94.0 (85.4-107)	187 (168-209)	347 (298-399)	488 (411-637)	1688
Gender							
Males	11-12	105 (95.8-116)	107 (96.8-114)	197 (174-231)	351 (316-414)	489 (438-576)	1251
Females	11-12	72.5 (64.3-81.9)	74.1 (64.0-85.4)	162 (142-178)	295 (240-356)	413 (342-608)	1215
Race/ethnicity							
Mexican Americans	11-12	81.5 (70.1-94.8)	79.5 (74.1-91.3)	144 (118-171)	248 (182-316)	368 (248-571)	313
Non-Hispanic blacks	11-12	129 (117-141)	136 (123-148)	238 (218-264)	373 (322-433)	539 (454-618)	662
Non-Hispanic whites	11-12	84.0 (74.4-94.7)	87.3 (78.9-98.6)	176 (151-203)	338 (285-384)	457 (398-596)	810
All Hispanics	11-12	79.9 (68.6-93.1)	82.5 (69.9-98.6)	147 (118-173)	267 (209-314)	379 (299-474)	566
Asians	11-12	65.8 (59.9-72.2)	69.8 (60.7-77.8)	123 (111-147)	236 (181-289)	337 (263-440)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 6.96.

Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	86.7 (80.8-93.0)	83.4 (76.8-90.4)	145 (133-158)	259 (232-278)	362 (329-389)	3330
Age group							
12-19 years	05-06	68.8 (61.9-76.6)	68.4 (60.7-74.2)	112 (96.9-128)	171 (144-190)	211 (185-254)	1027
20 years and older	05-06	89.9 (83.3-97.1)	86.5 (77.8-94.4)	151 (137-166)	270 (238-311)	385 (352-431)	2303
Gender							
Males	05-06	86.4 (79.4-94.1)	83.3 (75.4-91.2)	140 (124-156)	238 (206-274)	357 (296-385)	1583
Females	05-06	86.9 (79.5-95.1)	84.5 (75.6-92.5)	151 (136-167)	272 (243-304)	387 (338-437)	1747
Race/ethnicity							
Mexican Americans	05-06	69.1 (63.7-75.1)	74.3 (66.8-82.3)	117 (105-128)	170 (151-188)	210 (188-227)	816
Non-Hispanic blacks	05-06	94.6 (86.9-103)	94.9 (86.5-103)	152 (141-167)	259 (227-311)	376 (293-426)	896
Non-Hispanic whites	05-06	88.6 (81.1-96.8)	83.3 (75.6-92.1)	150 (134-171)	267 (232-311)	373 (324-433)	1364

Urinary N-Acetyl-S-(2-carboxyethyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	99.5 (92.7-107)	92.9 (86.7-97.5)	161 (145-173)	285 (245-329)	422 (348-494)	2464
Age group							
6-11 years	11-12	99.5 (91.8-108)	98.1 (88.1-106)	159 (143-173)	227 (205-272)	311 (229-330)	393
12-19 years	11-12	71.8 (63.8-80.7)	68.5 (60.1-75.5)	104 (86.2-124)	162 (129-225)	225 (160-334)	384
20 years and older	11-12	104 (96.7-113)	96.6 (91.0-103)	170 (157-181)	318 (262-370)	474 (373-590)	1687
Gender							
Males	11-12	99.0 (92.1-106)	88.4 (80.0-98.4)	158 (138-173)	284 (242-334)	402 (329-488)	1250
Females	11-12	99.9 (90.4-110)	94.5 (88.1-102)	164 (150-174)	293 (228-370)	455 (322-678)	1214
Race/ethnicity							
Mexican Americans	11-12	92.0 (79.6-106)	86.3 (76.6-98.0)	140 (118-166)	212 (169-298)	308 (204-478)	313
Non-Hispanic blacks	11-12	100 (93.8-108)	97.5 (92.2-103)	158 (140-172)	247 (212-274)	321 (263-399)	662
Non-Hispanic whites	11-12	103 (93.4-113)	94.5 (86.1-102)	170 (148-188)	321 (269-381)	488 (390-579)	808
All Hispanics	11-12	89.4 (80.3-99.5)	85.0 (77.2-95.0)	136 (122-153)	210 (188-247)	296 (217-366)	566
Asians	11-12	88.0 (82.2-94.3)	87.5 (78.9-92.9)	131 (118-147)	207 (179-249)	301 (240-411)	341

Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (2005 – 2006)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	244 (223-266)	245 (221-271)	516 (463-582)	1160 (1020-1370)	2010 (1660-2290)	3349
Age group							
12-19 years	05-06	227 (198-262)	234 (202-286)	427 (375-495)	749 (618-883)	1050 (809-1430)	1035
20 years and older	05-06	246 (223-271)	247 (221-275)	538 (479-611)	1270 (1100-1440)	2230 (1850-2480)	2313
Gender							
Males	05-06	308 (285-333)	309 (275-333)	582 (508-685)	1380 (1060-1630)	2210 (1900-2320)	1592
Females	05-06	195 (174-218)	189 (171-212)	439 (385-516)	1050 (809-1270)	1600 (1360-2360)	1756
Race/ethnicity							
Mexican Americans	05-06	237 (215-262)	246 (219-276)	473 (437-535)	816 (718-905)	1110 (942-1380)	822
Non-Hispanic blacks	05-06	323 (286-363)	312 (280-336)	654 (549-749)	1330 (1070-1830)	2080 (1700-2320)	902
Non-Hispanic whites	05-06	234 (208-262)	230 (206-259)	509 (445-602)	1270 (1050-1480)	2250 (1820-2590)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 13.0.

Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (2011 – 2012)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	225 (207-243)	210 (191-232)	433 (384-491)	949 (831-1120)	1550 (1330-1950)	2466
Age group							
6-11 years	11-12	169 (152-188)	171 (148-205)	342 (286-391)	524 (452-607)	671 (597-816)	394
12-19 years	11-12	191 (155-237)	189 (145-256)	377 (296-467)	675 (494-868)	1100 (657-1470)	384
20 years and older	11-12	237 (219-257)	220 (201-244)	464 (419-528)	1070 (934-1220)	1810 (1520-2150)	1688
Gender							
Males	11-12	269 (248-292)	250 (226-269)	469 (415-547)	971 (831-1300)	1610 (1400-2350)	1251
Females	11-12	189 (167-213)	165 (149-190)	395 (340-463)	897 (731-1200)	1440 (1260-1950)	1215
Race/ethnicity							
Mexican Americans	11-12	220 (185-262)	223 (183-283)	414 (346-475)	714 (558-831)	1030 (714-1440)	313
Non-Hispanic blacks	11-12	282 (247-321)	268 (239-296)	547 (446-631)	1070 (853-1350)	1640 (1350-1980)	662
Non-Hispanic whites	11-12	213 (191-238)	195 (174-220)	421 (364-488)	971 (771-1220)	1710 (1320-2150)	810
All Hispanics	11-12	213 (187-244)	213 (171-262)	395 (354-438)	726 (577-853)	1060 (734-1500)	566
Asians	11-12	250 (230-271)	240 (201-298)	550 (435-640)	912 (731-1130)	1260 (1010-1900)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 13.0.

Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	244 (224-266)	211 (195-222)	399 (360-483)	1070 (908-1270)	1680 (1500-1910)	3333
Age group							
12-19 years	05-06	174 (159-190)	160 (146-177)	280 (244-306)	442 (376-540)	658 (500-810)	1028
20 years and older	05-06	257 (233-285)	220 (202-231)	449 (378-558)	1240 (1000-1370)	1810 (1600-2140)	2303
Gender							
Males	05-06	252 (230-276)	217 (205-227)	390 (338-486)	1000 (857-1270)	1600 (1330-2080)	1583
Females	05-06	237 (214-261)	194 (179-222)	417 (359-513)	1150 (992-1270)	1740 (1500-1960)	1748
Race/ethnicity							
Mexican Americans	05-06	213 (201-225)	196 (188-212)	346 (315-370)	599 (517-651)	881 (718-909)	816
Non-Hispanic blacks	05-06	222 (199-249)	192 (177-211)	397 (344-435)	879 (732-1020)	1290 (995-1710)	896
Non-Hispanic whites	05-06	252 (224-283)	212 (191-224)	446 (361-565)	1280 (1010-1460)	1990 (1630-2260)	1365

Urinary N-Acetyl-S-(3-hydroxypropyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrolein

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	256 (239-275)	211 (197-226)	413 (378-446)	909 (776-1050)	1620 (1340-2040)	2464
Age group							
6-11 years	11-12	241 (225-258)	233 (210-249)	360 (316-391)	530 (433-621)	763 (552-923)	393
12-19 years	11-12	186 (162-215)	169 (142-208)	273 (228-339)	443 (351-632)	645 (443-914)	384
20 years and older	11-12	271 (253-290)	218 (200-235)	458 (421-500)	1080 (891-1310)	2010 (1620-2270)	1687
Gender							
Males	11-12	253 (235-273)	205 (195-226)	393 (353-447)	815 (669-1030)	1380 (1110-1930)	1250
Females	11-12	260 (233-290)	217 (191-244)	426 (378-474)	1030 (775-1310)	1820 (1430-2250)	1214
Race/ethnicity							
Mexican Americans	11-12	248 (211-293)	224 (196-265)	362 (317-438)	617 (492-727)	815 (617-1360)	313
Non-Hispanic blacks	11-12	220 (200-241)	185 (166-215)	331 (298-389)	698 (580-853)	1020 (826-1330)	662
Non-Hispanic whites	11-12	261 (237-286)	207 (194-226)	421 (371-472)	1080 (812-1340)	1990 (1430-2290)	808
All Hispanics	11-12	239 (215-265)	217 (191-239)	363 (336-411)	637 (568-727)	859 (707-1220)	566
Asians	11-12	334 (304-367)	311 (267-353)	563 (464-628)	964 (747-1160)	1370 (1040-2450)	341

Urinary N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (2005 – 2006)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	56.6 (52.3-61.2)	58.6 (53.9-64.7)	113 (105-123)	209 (182-247)	313 (266-343)	3343
Age group							
12-19 years	05-06	68.7 (61.5-76.8)	72.0 (63.1-83.1)	126 (108-156)	211 (176-239)	295 (235-334)	1030
20 years and older	05-06	54.9 (50.6-59.5)	56.8 (51.8-62.4)	110 (102-120)	208 (179-248)	313 (265-345)	2310
Gender							
Males	05-06	69.7 (64.9-74.9)	70.1 (65.3-76.0)	133 (117-148)	253 (202-305)	363 (305-413)	1587
Females	05-06	46.3 (42.3-50.7)	48.8 (43.5-53.6)	93.0 (84.5-106)	175 (148-200)	242 (196-314)	1752
Race/ethnicity							
Mexican Americans	05-06	59.8 (53.8-66.5)	69.8 (61.7-75.9)	112 (102-130)	178 (164-193)	231 (196-299)	821
Non-Hispanic blacks	05-06	75.8 (67.1-85.6)	80.1 (68.9-91.2)	138 (119-155)	259 (206-331)	366 (292-442)	897
Non-Hispanic whites	05-06	55.4 (50.8-60.5)	56.8 (52.1-61.6)	112 (102-121)	219 (176-260)	314 (260-345)	1368

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 2.2.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (2011 – 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	46.6 (43.6-49.9)	45.9 (43.1-48.9)	88.4 (82.8-95.9)	170 (155-195)	276 (211-370)	2466
Age group							
6-11 years	11-12	39.6 (36.0-43.5)	44.5 (40.0-51.5)	69.8 (60.5-82.2)	111 (96.8-126)	139 (122-187)	394
12-19 years	11-12	53.5 (45.2-63.4)	49.8 (41.9-66.3)	119 (95.2-142)	168 (158-202)	279 (168-439)	384
20 years and older	11-12	46.5 (42.6-50.7)	45.2 (42.4-49.0)	85.8 (79.9-97.4)	181 (154-208)	285 (221-384)	1688
Gender							
Males	11-12	55.6 (50.8-60.9)	53.4 (48.8-59.8)	101 (84.9-116)	177 (157-215)	276 (220-382)	1251
Females	11-12	39.3 (35.4-43.7)	38.7 (34.9-42.8)	75.3 (67.1-84.6)	158 (127-195)	272 (193-382)	1215
Race/ethnicity							
Mexican Americans	11-12	48.6 (41.6-56.9)	51.5 (42.7-59.8)	87.7 (75.1-108)	143 (108-195)	195 (143-274)	313
Non-Hispanic blacks	11-12	59.3 (54.0-65.0)	55.8 (49.9-62.2)	115 (93.8-141)	234 (178-276)	349 (293-419)	662
Non-Hispanic whites	11-12	46.4 (42.0-51.3)	45.1 (41.4-49.6)	87.6 (78.5-101)	168 (151-202)	285 (195-420)	810
All Hispanics	11-12	43.4 (37.3-50.5)	45.6 (38.7-52.2)	80.0 (69.1-91.1)	143 (112-186)	192 (163-264)	566
Asians	11-12	31.8 (27.6-36.6)	33.3 (29.0-39.7)	58.4 (50.1-71.9)	109 (78.3-145)	153 (131-200)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 2.2.

Urinary N-Acetyl-S-(2-carbamoylethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	56.7 (53.4-60.2)	53.2 (50.4-56.2)	92.7 (85.3-100)	162 (151-175)	218 (199-243)	3331
Age group							
12-19 years	05-06	52.6 (48.7-56.9)	50.7 (47.0-55.6)	80.6 (76.8-87.0)	127 (117-145)	174 (152-227)	1027
20 years and older	05-06	57.4 (53.6-61.5)	53.6 (50.4-57.0)	95.0 (87.2-104)	166 (153-177)	221 (199-251)	2303
Gender							
Males	05-06	57.1 (53.5-61.0)	51.7 (48.8-56.2)	91.3 (81.5-103)	167 (152-183)	232 (199-261)	1583
Females	05-06	56.3 (52.6-60.3)	54.7 (51.6-57.3)	94.6 (87.8-103)	154 (138-173)	210 (192-235)	1748
Race/ethnicity							
Mexican Americans	05-06	53.7 (47.7-60.4)	55.4 (49.9-62.6)	84.4 (75.3-91.2)	130 (106-156)	162 (138-194)	816
Non-Hispanic blacks	05-06	52.2 (48.1-56.7)	51.0 (46.1-55.2)	88.1 (76.8-101)	153 (127-176)	202 (177-237)	896
Non-Hispanic whites	05-06	59.8 (55.5-64.3)	55.5 (51.0-60.5)	97.5 (88.1-108)	172 (154-193)	235 (205-261)	1364

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-carbamoyl-ethyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	53.3 (50.3-56.4)	49.5 (47.4-51.7)	82.0 (76.6-89.4)	146 (127-168)	199 (167-237)	2464
Age group							
6-11 years	11-12	56.8 (53.5-60.4)	52.8 (50.9-56.2)	77.9 (70.3-84.6)	119 (105-143)	173 (121-202)	393
12-19 years	11-12	52.1 (46.3-58.7)	48.2 (42.5-53.3)	81.1 (66.5-94.7)	133 (105-203)	203 (128-366)	384
20 years and older	11-12	53.1 (49.7-56.6)	49.0 (46.0-52.0)	83.1 (76.6-91.5)	150 (129-173)	199 (162-262)	1687
Gender							
Males	11-12	52.3 (49.0-55.8)	48.4 (43.4-54.6)	82.5 (73.5-92.8)	145 (124-159)	187 (159-230)	1250
Females	11-12	54.3 (49.5-59.6)	50.3 (46.8-53.7)	82.0 (73.7-93.9)	155 (127-175)	210 (170-283)	1214
Race/ethnicity							
Mexican Americans	11-12	54.9 (45.6-66.1)	53.2 (45.3-61.0)	86.8 (69.9-104)	137 (104-183)	183 (135-215)	313
Non-Hispanic blacks	11-12	46.2 (42.7-50.0)	43.2 (41.0-46.4)	74.7 (66.4-80.8)	134 (110-156)	175 (148-210)	662
Non-Hispanic whites	11-12	56.8 (52.7-61.2)	51.7 (48.5-55.3)	88.1 (79.3-98.1)	159 (129-186)	215 (170-306)	808
All Hispanics	11-12	48.6 (41.8-56.3)	46.4 (42.0-50.7)	76.5 (65.7-87.6)	122 (101-143)	173 (127-215)	566
Asians	11-12	42.5 (38.4-47.0)	40.9 (35.5-45.1)	69.0 (58.1-79.3)	106 (94.3-126)	154 (124-166)	341

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (2005 – 2006)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	12.4 (10.9-13.9)	24.8 (23.0-26.5)	42.7 (38.2-48.6)	59.5 (54.4-64.1)	3349
Age group							
12-19 years	05-06	15.4 (13.7-17.3)	15.1 (12.0-18.1)	27.3 (23.4-31.4)	42.2 (36.6-49.2)	55.9 (45.2-75.7)	1036
20 years and older	05-06	*	11.8 (10.7-13.3)	24.6 (22.9-26.0)	42.9 (38.9-49.3)	60.1 (54.4-65.3)	2312
Gender							
Males	05-06	15.9 (15.1-16.7)	15.2 (13.7-16.6)	28.0 (25.7-32.4)	47.6 (42.5-53.3)	65.3 (56.0-80.9)	1592
Females	05-06	*	10.1 (<LOD-11.8)	21.3 (18.8-23.4)	37.0 (31.8-44.5)	55.4 (44.5-61.2)	1756
Race/ethnicity							
Mexican Americans	05-06	*	11.8 (10.3-13.7)	21.8 (18.6-26.5)	40.9 (34.8-45.3)	51.6 (44.2-59.5)	821
Non-Hispanic blacks	05-06	16.8 (15.4-18.3)	16.6 (14.3-19.1)	30.6 (26.7-34.2)	51.3 (43.0-60.1)	67.0 (59.5-77.4)	902
Non-Hispanic whites	05-06	*	12.4 (10.7-14.1)	24.8 (22.8-26.5)	42.5 (37.3-49.3)	57.2 (50.7-66.4)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 9.4.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (2011 – 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	14.2 (13.0-15.5)	25.5 (24.1-27.7)	37.0 (31.2-45.0)	2466
Age group							
6-11 years	11-12	*	< LOD	13.8 (12.6-15.2)	22.0 (17.9-26.0)	29.4 (21.1-35.1)	394
12-19 years	11-12	*	9.47 (<LOD-11.8)	16.1 (13.2-20.5)	28.3 (22.2-37.8)	39.3 (30.0-49.1)	384
20 years and older	11-12	*	< LOD	13.9 (12.6-15.4)	25.1 (22.9-28.3)	37.3 (30.1-49.2)	1688
Gender							
Males	11-12	*	< LOD	15.2 (13.9-17.2)	25.2 (22.9-28.2)	36.6 (30.3-43.2)	1251
Females	11-12	*	< LOD	12.9 (12.1-14.7)	25.9 (21.1-29.2)	38.4 (29.3-51.3)	1215
Race/ethnicity							
Mexican Americans	11-12	*	9.53 (<LOD-10.3)	14.6 (12.6-17.4)	22.4 (17.4-30.0)	30.0 (22.4-41.3)	313
Non-Hispanic blacks	11-12	*	9.70 (<LOD-11.3)	16.9 (14.4-20.1)	30.6 (26.3-36.2)	43.2 (37.0-52.4)	662
Non-Hispanic whites	11-12	*	< LOD	14.4 (12.5-16.6)	25.9 (23.6-28.3)	38.3 (29.2-53.0)	810
All Hispanics	11-12	*	< LOD	13.5 (12.0-15.3)	21.9 (17.4-28.9)	30.0 (23.8-37.1)	566
Asians	11-12	*	< LOD	9.93 (<LOD-11.0)	13.9 (12.9-15.5)	17.3 (14.7-24.1)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 9.4.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	13.9 (13.3-14.8)	22.3 (21.2-23.8)	33.6 (31.6-35.9)	42.6 (40.0-45.1)	3337
Age group							
12-19 years	05-06	11.8 (10.9-12.8)	12.1 (11.3-12.7)	17.8 (16.6-19.0)	27.0 (24.5-30.6)	33.1 (30.6-35.7)	1030
20 years and older	05-06	*	14.4 (13.6-15.1)	23.4 (21.8-24.6)	35.0 (32.6-37.1)	44.3 (41.2-46.5)	2307
Gender							
Males	05-06	13.0 (12.3-13.7)	12.9 (12.3-13.6)	20.5 (19.0-22.2)	31.6 (28.5-34.2)	39.1 (36.9-40.7)	1585
Females	05-06	*	15.1 (<LOD-16.2)	24.6 (22.2-26.5)	35.2 (32.9-39.1)	45.8 (42.6-49.7)	1752
Race/ethnicity							
Mexican Americans	05-06	*	12.5 (11.5-13.6)	18.9 (17.0-20.9)	26.8 (22.9-31.7)	34.4 (28.5-41.5)	818
Non-Hispanic blacks	05-06	11.6 (11.1-12.0)	11.2 (10.3-12.1)	18.2 (17.1-20.2)	28.5 (26.0-31.5)	37.7 (32.2-42.8)	899
Non-Hispanic whites	05-06	*	14.8 (13.9-15.8)	24.0 (22.2-25.6)	35.0 (32.9-37.9)	44.8 (40.1-48.3)	1365

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrylamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	18.0 (17.0-19.2)	28.9 (25.6-33.6)	39.1 (35.9-42.0)	2464
Age group							
6-11 years	11-12	*	< LOD	20.2 (18.5-22.4)	33.3 (24.6-40.0)	40.0 (35.0-59.5)	393
12-19 years	11-12	*	10.1 (<LOD-11.3)	16.2 (13.1-17.7)	29.4 (19.6-39.1)	40.5 (26.6-73.9)	384
20 years and older	11-12	*	< LOD	18.0 (17.0-19.6)	28.0 (24.6-34.1)	37.3 (34.6-42.0)	1687
Gender							
Males	11-12	*	< LOD	15.4 (14.2-16.6)	23.2 (21.0-26.0)	33.3 (26.7-37.3)	1250
Females	11-12	*	< LOD	21.5 (19.1-22.9)	34.6 (28.9-37.7)	46.8 (38.7-51.2)	1214
Race/ethnicity							
Mexican Americans	11-12	*	11.7 (<LOD-12.6)	16.1 (13.3-20.0)	25.2 (19.3-30.5)	30.5 (23.1-35.8)	313
Non-Hispanic blacks	11-12	*	8.61 (<LOD-9.33)	14.1 (12.1-16.0)	21.5 (19.7-23.5)	25.5 (24.3-31.6)	662
Non-Hispanic whites	11-12	*	< LOD	19.5 (17.8-21.0)	31.7 (26.6-35.9)	41.0 (36.9-47.5)	808
All Hispanics	11-12	*	< LOD	15.9 (13.9-18.5)	25.5 (20.2-30.2)	30.5 (25.6-36.9)	566
Asians	11-12	*	< LOD	16.6 (<LOD-19.3)	27.7 (22.2-32.6)	36.9 (27.7-47.5)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Acrylamide_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Acrylamide_FactSheet.html

Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (2005 – 2006)

Metabolite of Acrylonitrile

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	4.03 (3.37-4.83)	1.92 (1.72-2.09)	13.1 (6.17-31.1)	170 (143-200)	293 (242-349)	3345
Age group							
12-19 years	05-06	2.93 (2.35-3.64)	1.98 (1.68-2.30)	4.37 (3.26-6.02)	48.1 (17.7-86.6)	139 (81.0-183)	1030
20 years and older	05-06	4.24 (3.48-5.17)	1.92 (1.67-2.14)	20.5 (6.97-49.5)	189 (157-223)	316 (255-366)	2312
Gender							
Males	05-06	5.54 (4.45-6.89)	2.33 (1.97-2.76)	44.6 (12.8-71.4)	196 (160-231)	319 (259-362)	1587
Females	05-06	2.98 (2.49-3.56)	1.53 (1.32-1.78)	5.15 (3.37-9.01)	139 (90.9-176)	268 (192-363)	1754
Race/ethnicity							
Mexican Americans	05-06	2.60 (2.24-3.03)	1.68 (1.58-1.79)	3.84 (3.24-4.99)	45.5 (17.1-85.4)	126 (70.6-172)	818
Non-Hispanic blacks	05-06	6.95 (5.55-8.69)	2.87 (2.45-3.78)	48.4 (17.4-79.0)	220 (169-286)	387 (252-481)	900
Non-Hispanic whites	05-06	4.04 (3.18-5.13)	1.78 (1.62-2.01)	19.2 (5.56-49.8)	176 (146-223)	311 (249-355)	1367

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.5.

Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (2011 – 2012)

Metabolite of Acrylonitrile

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.40 (2.97-3.90)	1.71 (1.61-1.86)	5.42 (4.03-8.55)	136 (100-172)	276 (238-323)	2466
Age group							
6-11 years	11-12	1.47 (1.35-1.60)	1.38 (1.30-1.58)	2.44 (2.18-2.90)	4.27 (3.15-5.40)	6.71 (4.26-9.62)	394
12-19 years	11-12	2.65 (2.07-3.39)	1.68 (1.36-2.13)	3.79 (2.90-5.85)	40.6 (9.71-88.9)	135 (43.9-276)	384
20 years and older	11-12	3.87 (3.32-4.52)	1.78 (1.61-1.98)	10.3 (5.71-19.9)	164 (131-203)	310 (239-385)	1688
Gender							
Males	11-12	4.27 (3.60-5.06)	2.14 (1.92-2.35)	9.79 (5.39-17.1)	166 (117-207)	294 (217-439)	1251
Females	11-12	2.73 (2.16-3.46)	1.42 (1.26-1.61)	3.72 (2.83-5.55)	118 (74.4-142)	260 (142-310)	1215
Race/ethnicity							
Mexican Americans	11-12	2.51 (1.88-3.36)	1.61 (1.31-1.87)	3.50 (2.74-6.61)	51.6 (12.6-105)	105 (38.8-174)	313
Non-Hispanic blacks	11-12	5.02 (3.99-6.32)	2.63 (2.16-3.11)	9.18 (5.27-24.4)	166 (123-228)	339 (234-429)	662
Non-Hispanic whites	11-12	3.46 (2.95-4.07)	1.63 (1.47-1.82)	6.33 (3.97-12.6)	146 (117-203)	280 (228-350)	810
All Hispanics	11-12	2.57 (2.01-3.28)	1.57 (1.41-1.79)	3.49 (2.78-5.42)	58.5 (17.3-105)	158 (74.3-253)	566
Asians	11-12	1.90 (1.65-2.21)	1.40 (1.24-1.65)	2.73 (2.18-3.10)	12.3 (4.53-48.4)	91.4 (24.4-133)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrylonitrile

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	4.04 (3.38-4.84)	1.61 (1.46-1.82)	10.2 (4.55-34.4)	159 (124-192)	271 (234-290)	3334
Age group							
12-19 years	05-06	2.24 (1.89-2.66)	1.33 (1.22-1.42)	3.24 (2.29-4.51)	37.4 (13.4-57.2)	86.9 (57.2-119)	1029
20 years and older	05-06	4.44 (3.64-5.41)	1.67 (1.50-1.88)	21.2 (5.38-52.1)	182 (147-206)	281 (250-306)	2305
Gender							
Males	05-06	4.53 (3.61-5.70)	1.59 (1.41-1.84)	35.4 (8.66-63.0)	165 (124-196)	235 (206-281)	1583
Females	05-06	3.62 (3.02-4.34)	1.63 (1.43-1.89)	4.41 (3.26-8.17)	147 (115-188)	284 (242-316)	1751
Race/ethnicity							
Mexican Americans	05-06	2.34 (1.96-2.79)	1.42 (1.32-1.49)	3.03 (2.64-3.96)	31.7 (11.7-73.5)	91.0 (44.2-126)	817
Non-Hispanic blacks	05-06	4.79 (3.95-5.81)	1.83 (1.51-2.46)	35.3 (10.2-63.3)	147 (109-183)	217 (183-259)	897
Non-Hispanic whites	05-06	4.36 (3.41-5.56)	1.61 (1.43-1.94)	19.1 (4.11-57.2)	184 (138-225)	287 (259-315)	1365

Urinary N-Acetyl-S-(2-cyanoethyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrylonitrile

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	3.89 (3.44-4.40)	1.83 (1.73-1.93)	5.28 (4.08-7.59)	157 (119-194)	256 (224-300)	2464
Age group							
6-11 years	11-12	2.11 (1.91-2.33)	2.00 (1.81-2.22)	2.95 (2.53-3.59)	5.00 (3.92-5.78)	6.31 (5.74-7.95)	393
12-19 years	11-12	2.58 (2.10-3.18)	1.73 (1.51-1.88)	3.28 (2.35-5.84)	19.3 (7.61-58.9)	157 (17.6-228)	384
20 years and older	11-12	4.43 (3.85-5.09)	1.82 (1.66-2.00)	8.86 (5.46-20.6)	188 (151-224)	292 (238-339)	1687
Gender							
Males	11-12	4.02 (3.34-4.83)	1.76 (1.61-1.93)	7.71 (4.18-20.2)	153 (116-220)	238 (220-278)	1250
Females	11-12	3.77 (3.01-4.73)	1.87 (1.71-2.09)	4.37 (3.22-6.59)	158 (86.4-228)	292 (229-315)	1214
Race/ethnicity							
Mexican Americans	11-12	2.84 (2.20-3.66)	1.65 (1.49-1.86)	3.52 (2.40-7.27)	41.8 (20.0-93.2)	128 (39.4-345)	313
Non-Hispanic blacks	11-12	3.91 (3.18-4.81)	1.92 (1.74-2.10)	7.14 (3.58-33.5)	120 (92.2-139)	199 (145-241)	662
Non-Hispanic whites	11-12	4.25 (3.67-4.92)	1.85 (1.74-1.97)	6.40 (4.02-13.7)	200 (157-230)	292 (238-342)	808
All Hispanics	11-12	2.88 (2.37-3.49)	1.62 (1.53-1.78)	3.38 (2.65-4.56)	54.1 (31.6-91.7)	146 (67.8-230)	566
Asians	11-12	2.55 (2.26-2.87)	1.76 (1.61-2.15)	3.50 (2.89-4.18)	13.0 (5.64-37.8)	68.0 (26.8-98.5)	341

Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (2005 – 2006)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	.960 (<LOD-1.61)	3.30 (2.84-3.93)	5.95 (5.16-6.71)	3347
Age group							
12-19 years	05-06	*	< LOD	1.35 (<LOD-2.24)	3.46 (3.04-4.08)	5.11 (4.03-5.98)	1036
20 years and older	05-06	*	< LOD	.888 (<LOD-1.53)	3.23 (2.63-4.11)	6.23 (5.43-7.21)	2311
Gender							
Males	05-06	*	< LOD	.799 (<LOD-1.69)	3.12 (2.32-3.92)	5.15 (4.08-6.53)	1590
Females	05-06	*	< LOD	1.10 (<LOD-1.65)	3.57 (2.92-4.58)	6.65 (5.24-7.93)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	1.22 (<LOD-1.91)	3.29 (2.59-3.88)	4.64 (3.88-5.68)	822
Non-Hispanic blacks	05-06	*	< LOD	1.35 (<LOD-2.99)	4.47 (3.00-6.03)	6.63 (4.68-11.6)	901
Non-Hispanic whites	05-06	*	< LOD	.815 (<LOD-1.73)	3.23 (2.56-4.09)	6.22 (5.10-7.21)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.791.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (2011 – 2012)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	.920 (.815-1.05)	1.77 (1.61-1.94)	3.70 (3.19-4.65)	6.19 (5.31-7.07)	2466
Age group							
6-11 years	11-12	1.20 (1.06-1.36)	1.18 (1.00-1.27)	1.89 (1.62-2.33)	3.23 (2.73-3.96)	4.61 (3.46-5.12)	394
12-19 years	11-12	1.28 (1.11-1.46)	1.19 (.920-1.32)	2.09 (1.67-2.60)	3.77 (2.89-5.38)	6.08 (4.91-7.45)	384
20 years and older	11-12	*	.895 (<LOD-1.01)	1.70 (1.45-1.95)	3.76 (3.10-4.78)	6.53 (5.38-7.71)	1688
Gender							
Males	11-12	*	.916 (<LOD-1.10)	1.71 (1.49-1.95)	3.35 (2.67-4.07)	5.31 (4.23-6.78)	1251
Females	11-12	*	.943 (<LOD-1.13)	1.83 (1.58-2.17)	4.53 (3.46-5.15)	6.83 (5.15-8.74)	1215
Race/ethnicity							
Mexican Americans	11-12	1.20 (1.05-1.38)	1.04 (.936-1.18)	1.86 (1.49-2.24)	3.93 (2.85-4.91)	5.24 (4.78-6.48)	313
Non-Hispanic blacks	11-12	1.43 (1.28-1.60)	1.29 (1.12-1.51)	2.41 (2.01-2.88)	4.78 (3.62-7.07)	8.62 (6.46-10.0)	662
Non-Hispanic whites	11-12	*	.883 (<LOD-1.01)	1.65 (1.43-1.87)	3.64 (2.89-4.65)	6.11 (5.03-7.45)	810
All Hispanics	11-12	*	.964 (.854-1.08)	1.75 (1.46-2.12)	3.49 (2.88-4.62)	5.24 (3.93-7.06)	566
Asians	11-12	*	< LOD	1.29 (1.14-1.41)	2.33 (1.62-2.73)	3.35 (2.53-4.80)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.791.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	1.60 (<LOD-2.03)	3.32 (2.94-4.03)	5.70 (4.44-6.76)	3344
Age group							
12-19 years	05-06	*	< LOD	1.36 (<LOD-1.74)	2.53 (2.08-3.04)	3.81 (2.78-4.64)	1034
20 years and older	05-06	*	< LOD	1.64 (<LOD-2.07)	3.49 (2.94-4.35)	5.98 (4.51-7.52)	2310
Gender							
Males	05-06	*	< LOD	1.14 (<LOD-1.47)	2.46 (2.10-3.25)	4.11 (3.29-5.97)	1588
Females	05-06	*	< LOD	2.05 (<LOD-2.43)	4.21 (3.49-4.95)	6.20 (5.19-8.73)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	1.47 (<LOD-1.66)	2.66 (2.33-3.09)	4.30 (2.95-5.66)	819
Non-Hispanic blacks	05-06	*	< LOD	1.21 (<LOD-2.13)	2.80 (2.18-3.99)	4.45 (3.10-5.91)	900
Non-Hispanic whites	05-06	*	< LOD	1.69 (<LOD-2.15)	3.62 (2.94-4.57)	6.21 (4.66-7.80)	1369

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxyethyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Acrylonitrile, Ethylene oxide, and Vinyl chloride

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	1.24 (1.17-1.33)	2.24 (2.07-2.41)	4.18 (3.76-4.57)	6.38 (5.08-7.70)	2464
Age group							
6-11 years	11-12	1.69 (1.50-1.91)	1.69 (1.46-1.90)	2.65 (2.26-3.16)	3.90 (3.26-4.66)	5.11 (3.81-7.06)	393
12-19 years	11-12	1.24 (1.13-1.37)	1.17 (.998-1.28)	2.01 (1.62-2.49)	3.62 (2.79-5.53)	6.21 (3.86-7.99)	384
20 years and older	11-12	*	1.20 (<LOD-1.33)	2.16 (2.00-2.43)	4.30 (3.77-4.97)	6.87 (5.21-7.73)	1687
Gender							
Males	11-12	*	.984 (<LOD-1.12)	1.75 (1.55-2.05)	3.29 (3.05-3.55)	4.90 (4.03-5.93)	1250
Females	11-12	*	1.47 (<LOD-1.61)	2.60 (2.33-2.96)	5.08 (3.94-6.96)	7.35 (5.29-11.6)	1214
Race/ethnicity							
Mexican Americans	11-12	1.36 (1.17-1.57)	1.27 (1.14-1.46)	2.26 (1.90-2.62)	3.98 (2.94-5.66)	6.05 (4.21-7.37)	313
Non-Hispanic blacks	11-12	1.12 (1.03-1.21)	.994 (.890-1.15)	1.99 (1.69-2.19)	3.77 (3.26-4.36)	5.33 (4.45-5.97)	662
Non-Hispanic whites	11-12	*	1.30 (<LOD-1.40)	2.24 (2.07-2.52)	4.30 (3.49-5.08)	6.79 (4.53-8.85)	808
All Hispanics	11-12	*	1.21 (1.10-1.40)	2.13 (1.84-2.43)	3.66 (2.94-4.52)	5.83 (4.18-6.96)	566
Asians	11-12	*	< LOD	1.93 (1.69-2.50)	3.29 (2.54-4.30)	4.77 (3.30-7.99)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(phenyl)-L-cysteine (2005 – 2006)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	1.08 (.941-1.22)	1.61 (1.36-1.98)	3347
Age group							
12-19 years	05-06	*	< LOD	< LOD	1.09 (.884-1.29)	1.52 (1.29-1.72)	1035
20 years and older	05-06	*	< LOD	< LOD	1.08 (.941-1.24)	1.64 (1.37-2.27)	2312
Gender							
Males	05-06	*	< LOD	< LOD	1.08 (.946-1.29)	1.64 (1.36-1.98)	1590
Females	05-06	*	< LOD	< LOD	1.08 (.875-1.28)	1.60 (1.23-2.47)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	1.07 (.823-1.53)	1.64 (1.07-2.31)	821
Non-Hispanic blacks	05-06	*	< LOD	< LOD	.945 (.717-1.15)	1.38 (1.15-1.58)	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	1.10 (.982-1.31)	1.72 (1.36-2.45)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzene_FactSheet.html

Urinary N-Acetyl-S-(phenyl)-L-cysteine (2011 – 2012)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.07 (.985-1.14)	1.95 (1.72-2.30)	3.01 (2.65-3.32)	2466
Age group							
6-11 years	11-12	*	< LOD	1.28 (1.10-1.52)	2.36 (1.93-2.63)	2.98 (2.40-3.67)	394
12-19 years	11-12	*	< LOD	1.12 (.963-1.41)	1.96 (1.57-2.52)	2.81 (2.03-3.27)	384
20 years and older	11-12	*	< LOD	1.02 (.943-1.12)	1.91 (1.63-2.40)	3.05 (2.56-3.45)	1688
Gender							
Males	11-12	*	.645 (<LOD-.765)	1.20 (1.07-1.28)	2.12 (1.76-2.51)	3.11 (2.65-3.76)	1251
Females	11-12	*	< LOD	.964 (.834-1.07)	1.91 (1.56-2.38)	2.84 (2.12-3.32)	1215
Race/ethnicity							
Mexican Americans	11-12	*	.661 (<LOD-.958)	1.44 (.995-1.68)	2.54 (1.75-2.93)	2.96 (2.52-5.19)	313
Non-Hispanic blacks	11-12	*	< LOD	1.05 (.963-1.16)	1.84 (1.59-2.11)	2.62 (2.19-3.06)	662
Non-Hispanic whites	11-12	*	< LOD	1.04 (.931-1.13)	1.92 (1.61-2.40)	3.08 (2.44-3.50)	810
All Hispanics	11-12	*	< LOD	1.20 (1.00-1.45)	2.26 (1.75-2.62)	2.85 (2.49-3.33)	566
Asians	11-12	*	< LOD	.932 (.806-1.09)	1.84 (1.45-2.16)	2.56 (2.13-3.48)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(phenyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	1.55 (1.39-1.66)	2.02 (1.84-2.17)	3346
Age group							
12-19 years	05-06	*	< LOD	< LOD	1.06 (.840-1.33)	1.36 (1.16-1.77)	1034
20 years and older	05-06	*	< LOD	< LOD	1.60 (1.47-1.70)	2.12 (1.93-2.23)	2311
Gender							
Males	05-06	*	< LOD	< LOD	1.15 (1.07-1.29)	1.59 (1.47-1.77)	1590
Females	05-06	*	< LOD	< LOD	1.81 (1.63-1.93)	2.36 (2.02-2.74)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	1.21 (1.09-1.35)	1.64 (1.41-1.82)	819
Non-Hispanic blacks	05-06	*	< LOD	< LOD	.831 (.720-.925)	1.25 (.914-1.57)	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	1.63 (1.50-1.77)	2.12 (1.93-2.23)	1370

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzene_FactSheet.html

Urinary N-Acetyl-S-(phenyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Benzene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.29 (1.18-1.41)	2.10 (1.86-2.37)	3.03 (2.62-3.53)	2464
Age group							
6-11 years	11-12	*	< LOD	1.95 (1.64-2.24)	2.68 (2.44-3.45)	3.58 (2.66-4.71)	393
12-19 years	11-12	*	< LOD	1.14 (.942-1.41)	1.70 (1.29-2.23)	2.35 (1.70-4.39)	384
20 years and older	11-12	*	< LOD	1.26 (1.15-1.39)	2.02 (1.77-2.42)	3.03 (2.50-3.53)	1687
Gender							
Males	11-12	*	.704 (<LOD-.771)	1.12 (1.00-1.25)	1.89 (1.64-2.21)	2.55 (2.23-2.98)	1250
Females	11-12	*	< LOD	1.46 (1.30-1.62)	2.35 (2.02-2.73)	3.46 (2.73-4.71)	1214
Race/ethnicity							
Mexican Americans	11-12	*	.883 (<LOD-.986)	1.45 (1.15-1.82)	2.15 (1.66-3.04)	3.04 (1.93-5.59)	313
Non-Hispanic blacks	11-12	*	< LOD	.847 (.742-.924)	1.35 (1.18-1.57)	1.88 (1.57-2.36)	662
Non-Hispanic whites	11-12	*	< LOD	1.36 (1.22-1.46)	2.23 (1.92-2.55)	3.26 (2.55-4.15)	808
All Hispanics	11-12	*	< LOD	1.34 (1.11-1.64)	1.93 (1.68-2.62)	2.68 (2.04-3.39)	566
Asians	11-12	*	< LOD	1.46 (1.27-1.66)	2.23 (1.91-3.03)	3.03 (2.37-4.95)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Benzene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Benzene_FactSheet.html

Urinary N-Acetyl-S-(n-propyl)-L-cysteine (2005 – 2006)

Metabolite of 1-Bromopropane

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	3.70 (3.40-4.02)	2.96 (2.62-3.41)	9.49 (8.61-10.6)	26.7 (22.1-33.3)	52.0 (42.7-62.5)	3346
Age group							
12-19 years	05-06	3.57 (3.08-4.13)	2.89 (2.39-3.67)	9.29 (7.21-11.0)	24.5 (18.2-29.7)	46.1 (30.4-62.6)	1033
20 years and older	05-06	3.72 (3.42-4.04)	2.97 (2.62-3.45)	9.58 (8.61-10.8)	27.3 (22.0-34.6)	52.6 (42.8-62.5)	2310
Gender							
Males	05-06	4.03 (3.63-4.47)	3.50 (2.97-4.06)	10.3 (8.76-11.9)	28.6 (21.7-35.0)	52.0 (42.0-62.5)	1589
Females	05-06	3.40 (3.02-3.84)	2.57 (2.13-3.05)	8.98 (7.50-10.6)	26.0 (18.0-38.4)	49.3 (38.6-65.7)	1754
Race/ethnicity							
Mexican Americans	05-06	5.63 (4.65-6.80)	5.61 (4.30-6.48)	17.0 (13.0-20.7)	44.8 (33.3-54.9)	77.2 (54.9-89.6)	819
Non-Hispanic blacks	05-06	4.20 (3.57-4.95)	3.78 (2.89-5.26)	10.1 (8.96-12.4)	27.9 (19.8-37.9)	51.1 (37.9-77.7)	899
Non-Hispanic whites	05-06	3.30 (3.05-3.58)	2.48 (2.17-2.87)	8.42 (7.50-9.45)	22.9 (18.6-29.5)	45.5 (33.3-56.9)	1367

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 1.2.

Urinary N-Acetyl-S-(n-propyl)-L-cysteine (2011 – 2012)

Metabolite of 1-Bromopropane

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.08 (3.67-4.52)	3.70 (3.18-4.14)	10.3 (8.86-11.8)	26.5 (23.0-29.9)	43.7 (37.0-60.9)	2396
Age group							
6-11 years	11-12	2.44 (2.15-2.78)	1.74 (1.44-2.30)	5.09 (4.38-6.26)	12.1 (8.91-20.7)	24.8 (15.7-32.0)	387
12-19 years	11-12	3.13 (2.41-4.08)	2.46 (1.50-4.28)	7.10 (4.72-10.3)	18.1 (11.1-31.5)	31.6 (18.1-49.3)	366
20 years and older	11-12	4.48 (4.00-5.02)	4.10 (3.64-4.63)	11.4 (9.69-13.8)	28.9 (24.6-33.1)	49.7 (36.1-72.4)	1643
Gender							
Males	11-12	4.27 (3.73-4.89)	3.75 (3.13-4.51)	10.4 (8.86-12.2)	28.4 (23.0-33.9)	48.9 (33.1-72.9)	1218
Females	11-12	3.90 (3.44-4.41)	3.58 (2.85-4.23)	10.2 (8.23-12.7)	24.8 (20.2-30.2)	43.0 (32.4-52.3)	1178
Race/ethnicity							
Mexican Americans	11-12	5.51 (4.37-6.95)	5.59 (4.13-8.24)	14.3 (11.1-20.8)	29.0 (22.3-40.5)	40.5 (28.2-60.8)	293
Non-Hispanic blacks	11-12	5.15 (4.24-6.27)	4.52 (3.51-5.67)	13.1 (10.3-16.4)	38.3 (27.3-52.2)	66.0 (43.0-93.2)	655
Non-Hispanic whites	11-12	3.52 (3.10-3.99)	3.09 (2.38-3.75)	8.33 (6.46-10.5)	21.7 (17.5-27.4)	39.6 (25.8-61.8)	795
All Hispanics	11-12	5.18 (4.34-6.20)	5.16 (4.22-6.36)	12.9 (11.1-17.2)	28.9 (24.0-34.9)	43.5 (33.7-60.8)	544
Asians	11-12	6.94 (5.71-8.45)	6.33 (4.70-9.11)	20.9 (16.9-27.0)	42.2 (32.8-58.0)	69.7 (48.9-98.7)	316

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 1.2.

Urinary N-Acetyl-S-(n-propyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of 1-Bromopropane

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	3.70 (3.40-4.03)	3.30 (2.89-3.71)	9.15 (7.73-10.1)	22.8 (18.3-28.7)	42.4 (34.7-53.1)	3333
Age group							
12-19 years	05-06	2.73 (2.36-3.17)	2.29 (1.89-2.71)	6.15 (5.29-7.08)	17.8 (13.6-21.2)	33.1 (22.0-42.6)	1028
20 years and older	05-06	3.89 (3.57-4.24)	3.46 (3.00-3.95)	9.50 (8.10-10.7)	24.2 (18.5-30.0)	43.9 (36.3-56.4)	2305
Gender							
Males	05-06	3.30 (2.98-3.66)	2.93 (2.56-3.48)	7.50 (6.63-9.68)	19.4 (16.7-25.8)	34.7 (29.8-44.9)	1583
Females	05-06	4.14 (3.63-4.72)	3.67 (3.10-4.42)	9.70 (8.10-11.6)	25.7 (18.3-38.6)	48.0 (37.0-63.3)	1749
Race/ethnicity							
Mexican Americans	05-06	5.05 (4.31-5.91)	4.54 (3.39-6.56)	14.8 (11.7-17.5)	36.4 (25.7-50.4)	59.4 (41.8-80.0)	816
Non-Hispanic blacks	05-06	2.89 (2.44-3.44)	2.58 (2.05-3.47)	7.39 (5.66-8.81)	18.9 (14.4-22.1)	30.4 (25.1-39.2)	896
Non-Hispanic whites	05-06	3.56 (3.29-3.85)	3.15 (2.70-3.51)	7.99 (7.12-9.32)	20.2 (17.6-27.2)	42.0 (32.2-52.6)	1365

Urinary N-Acetyl-S-(n-propyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of 1-Bromopropane

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	4.64 (4.23-5.09)	4.19 (3.69-4.72)	11.3 (9.46-12.8)	28.8 (24.2-32.7)	46.1 (36.4-58.4)	2394
Age group							
6-11 years	11-12	3.39 (3.01-3.82)	3.15 (2.58-3.87)	6.54 (5.46-7.71)	14.0 (10.7-17.1)	21.5 (14.5-30.0)	386
12-19 years	11-12	3.08 (2.31-4.10)	2.59 (1.74-4.24)	7.14 (4.29-10.6)	15.6 (9.44-23.4)	23.8 (15.6-43.1)	366
20 years and older	11-12	5.10 (4.61-5.64)	4.72 (4.17-5.32)	12.7 (11.1-13.9)	31.2 (25.1-40.0)	50.3 (37.9-64.4)	1642
Gender							
Males	11-12	4.01 (3.59-4.47)	3.59 (3.24-4.03)	9.20 (7.62-11.1)	24.6 (19.2-31.0)	40.0 (33.8-47.6)	1217
Females	11-12	5.34 (4.58-6.24)	4.88 (4.12-6.06)	12.9 (10.6-16.2)	30.3 (25.1-37.1)	50.3 (36.7-65.1)	1177
Race/ethnicity							
Mexican Americans	11-12	6.14 (5.18-7.29)	5.61 (3.86-8.70)	15.0 (12.5-21.8)	32.4 (22.7-45.2)	46.3 (27.4-67.1)	293
Non-Hispanic blacks	11-12	4.02 (3.29-4.91)	3.76 (2.94-4.71)	9.20 (6.72-12.9)	28.1 (17.7-45.7)	56.6 (33.4-72.3)	655
Non-Hispanic whites	11-12	4.30 (3.80-4.87)	3.83 (3.27-4.54)	9.88 (8.31-12.1)	25.6 (19.1-31.0)	42.2 (29.3-54.5)	793
All Hispanics	11-12	5.76 (5.02-6.61)	5.44 (4.25-6.61)	13.8 (11.9-16.3)	30.9 (24.8-37.6)	45.8 (34.7-63.0)	544
Asians	11-12	9.12 (7.40-11.2)	8.93 (7.06-11.8)	23.6 (16.6-36.7)	54.2 (43.1-65.0)	72.0 (60.4-107)	316

Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	264 (240-289)	303 (281-325)	497 (456-532)	733 (672-807)	916 (824-1030)	3346
Age group							
12-19 years	05-06	330 (294-370)	361 (318-397)	555 (501-610)	802 (749-858)	988 (868-1150)	1035
20 years and older	05-06	255 (231-281)	295 (269-320)	482 (443-526)	717 (656-801)	910 (801-1050)	2310
Gender							
Males	05-06	310 (280-343)	354 (322-381)	544 (494-612)	807 (717-884)	1010 (854-1130)	1591
Females	05-06	226 (205-249)	254 (233-281)	434 (409-461)	657 (602-703)	841 (716-968)	1755
Race/ethnicity							
Mexican Americans	05-06	278 (250-308)	311 (285-341)	470 (422-537)	682 (589-756)	810 (735-887)	820
Non-Hispanic blacks	05-06	327 (288-370)	367 (330-392)	544 (503-584)	786 (697-884)	998 (811-1240)	899
Non-Hispanic whites	05-06	255 (227-286)	294 (268-323)	497 (451-539)	733 (657-827)	915 (801-1070)	1368

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 5.25.

Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	262 (244-281)	281 (264-307)	470 (436-499)	673 (629-736)	877 (777-971)	2466
Age group							
6-11 years	11-12	265 (236-297)	283 (248-346)	466 (416-512)	756 (552-914)	934 (604-1480)	394
12-19 years	11-12	266 (228-309)	283 (233-353)	524 (429-548)	674 (627-711)	754 (674-912)	384
20 years and older	11-12	261 (241-283)	281 (256-310)	466 (427-498)	670 (618-768)	877 (777-976)	1688
Gender							
Males	11-12	310 (284-339)	340 (299-382)	505 (475-547)	721 (645-837)	958 (797-1220)	1251
Females	11-12	223 (204-243)	233 (215-258)	422 (384-442)	625 (574-658)	803 (661-909)	1215
Race/ethnicity							
Mexican Americans	11-12	258 (221-301)	285 (228-346)	458 (401-489)	591 (520-718)	755 (613-911)	313
Non-Hispanic blacks	11-12	328 (302-356)	369 (320-399)	536 (496-583)	777 (689-848)	947 (872-1060)	662
Non-Hispanic whites	11-12	259 (238-281)	275 (240-303)	470 (424-520)	688 (628-771)	906 (746-1030)	810
All Hispanics	11-12	253 (220-290)	277 (238-329)	453 (398-493)	582 (521-671)	740 (618-841)	566
Asians	11-12	193 (171-218)	220 (193-247)	340 (299-407)	498 (440-566)	623 (537-751)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.25.

Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	264 (241-289)	274 (256-294)	363 (339-388)	482 (439-523)	575 (533-634)	3334
Age group							
12-19 years	05-06	253 (236-271)	252 (238-270)	329 (303-357)	425 (390-468)	515 (463-571)	1028
20 years and older	05-06	266 (241-293)	278 (260-301)	368 (346-392)	493 (443-535)	585 (537-666)	2305
Gender							
Males	05-06	254 (230-280)	264 (241-291)	354 (327-378)	443 (408-508)	540 (483-634)	1585
Females	05-06	275 (251-300)	282 (266-300)	375 (347-406)	506 (463-544)	594 (562-645)	1748
Race/ethnicity							
Mexican Americans	05-06	249 (234-265)	253 (234-269)	330 (314-340)	417 (402-438)	515 (463-543)	816
Non-Hispanic blacks	05-06	225 (198-256)	227 (206-253)	317 (289-340)	436 (377-498)	539 (452-652)	897
Non-Hispanic whites	05-06	275 (249-304)	287 (264-315)	377 (354-403)	506 (454-543)	586 (540-677)	1364

Urinary N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	299 (285-314)	293 (282-308)	388 (373-404)	504 (476-539)	603 (567-645)	2464
Age group							
6-11 years	11-12	380 (354-408)	379 (346-401)	478 (448-528)	644 (581-674)	755 (651-773)	393
12-19 years	11-12	259 (241-278)	260 (246-270)	314 (284-353)	406 (359-430)	433 (407-480)	384
20 years and older	11-12	298 (283-313)	292 (280-309)	384 (370-404)	502 (472-539)	583 (560-645)	1687
Gender							
Males	11-12	291 (276-307)	286 (272-295)	382 (363-405)	493 (462-528)	579 (527-675)	1250
Females	11-12	307 (290-326)	304 (285-320)	392 (370-421)	524 (491-549)	608 (567-645)	1214
Race/ethnicity							
Mexican Americans	11-12	291 (245-345)	291 (251-340)	378 (338-423)	490 (416-575)	575 (492-647)	313
Non-Hispanic blacks	11-12	256 (240-272)	246 (234-261)	327 (303-350)	438 (390-478)	520 (470-571)	662
Non-Hispanic whites	11-12	316 (300-333)	311 (295-324)	408 (392-431)	534 (493-573)	645 (572-681)	808
All Hispanics	11-12	283 (254-316)	280 (253-310)	367 (342-395)	472 (430-504)	540 (477-603)	566
Asians	11-12	258 (243-275)	252 (234-272)	330 (309-355)	413 (380-462)	524 (425-583)	341

Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	1.60 (1.10-2.24)	3.21 (2.73-3.85)	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	1.22 (<LOD-1.91)	1035
20 years and older	05-06	*	< LOD	< LOD	1.78 (1.33-2.39)	3.56 (2.97-4.10)	2313
Gender							
Males	05-06	*	< LOD	< LOD	1.80 (1.49-2.44)	3.37 (2.64-4.06)	1592
Females	05-06	*	< LOD	< LOD	1.18 (<LOD-1.86)	3.14 (2.52-3.65)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	1.06 (<LOD-2.05)	821
Non-Hispanic blacks	05-06	*	< LOD	< LOD	1.34 (.851-1.75)	2.90 (1.74-4.42)	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	1.86 (1.33-2.70)	3.67 (2.99-4.24)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	.985 (<LOD-1.33)	2.53 (2.03-3.34)	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	1.51 (.882-2.12)	384
20 years and older	11-12	*	< LOD	< LOD	1.21 (.931-1.88)	3.23 (2.20-4.26)	1688
Gender							
Males	11-12	*	< LOD	< LOD	.931 (<LOD-1.25)	2.21 (1.33-3.23)	1251
Females	11-12	*	< LOD	< LOD	1.07 (<LOD-1.76)	2.90 (2.20-3.79)	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	.785 (<LOD-1.24)	1.25 (.785-3.39)	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	.855 (<LOD-1.23)	2.71 (1.32-4.34)	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	1.16 (.714-1.76)	2.90 (2.11-4.26)	810
All Hispanics	11-12	*	< LOD	< LOD	.711 (<LOD-1.23)	1.45 (.914-2.97)	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	2.27 (2.02-2.61)	3.54 (3.05-3.85)	3347
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	1.60 (<LOD-2.25)	1035
20 years and older	05-06	*	< LOD	< LOD	2.48 (2.19-2.77)	3.76 (3.26-4.09)	2311
Gender							
Males	05-06	*	< LOD	< LOD	1.94 (1.55-2.25)	2.91 (2.32-3.80)	1592
Females	05-06	*	< LOD	< LOD	2.61 (<LOD-2.98)	3.81 (3.30-4.13)	1755
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	1.79 (<LOD-2.15)	821
Non-Hispanic blacks	05-06	*	< LOD	< LOD	1.17 (.990-1.50)	2.24 (1.71-2.83)	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	2.61 (2.25-2.91)	3.81 (3.26-4.40)	1370

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	2.15 (<LOD-2.65)	3.70 (2.75-5.20)	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	2.61 (1.65-3.09)	384
20 years and older	11-12	*	< LOD	< LOD	2.32 (1.98-2.86)	4.27 (2.91-5.68)	1687
Gender							
Males	11-12	*	< LOD	< LOD	1.71 (<LOD-2.06)	2.91 (2.12-3.51)	1250
Females	11-12	*	< LOD	< LOD	2.65 (<LOD-3.30)	4.67 (3.06-6.21)	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	1.71 (<LOD-2.32)	2.32 (1.71-4.76)	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	1.44 (<LOD-1.57)	2.06 (1.65-2.70)	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	2.48 (1.98-2.91)	4.48 (2.91-5.67)	808
All Hispanics	11-12	*	< LOD	< LOD	1.98 (<LOD-2.32)	2.61 (2.15-3.30)	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	6.22 (5.55-6.98)	5.78 (5.24-6.55)	14.3 (11.7-16.2)	40.4 (33.1-48.4)	69.3 (59.1-77.6)	3347
Age group							
12-19 years	05-06	6.15 (5.09-7.44)	6.34 (5.01-7.92)	11.4 (10.4-13.3)	21.9 (18.6-26.0)	39.9 (25.5-57.8)	1029
20 years and older	05-06	6.24 (5.53-7.04)	5.66 (5.17-6.39)	14.9 (11.6-18.2)	43.6 (35.2-53.3)	71.8 (62.0-80.1)	2312
Gender							
Males	05-06	7.72 (6.92-8.61)	7.28 (6.38-8.19)	15.9 (13.4-19.8)	46.1 (35.2-59.1)	70.7 (61.1-79.2)	1587
Females	05-06	5.07 (4.42-5.81)	4.65 (4.20-5.21)	11.4 (8.91-14.5)	34.2 (26.0-43.2)	66.2 (48.1-84.0)	1750
Race/ethnicity							
Mexican Americans	05-06	5.80 (5.29-6.37)	5.58 (4.96-6.27)	11.2 (9.76-12.9)	21.1 (18.6-25.3)	32.9 (25.3-39.9)	820
Non-Hispanic blacks	05-06	8.37 (7.28-9.62)	6.97 (6.13-8.27)	17.1 (14.2-22.2)	52.5 (35.2-66.1)	76.1 (59.5-89.3)	899
Non-Hispanic whites	05-06	6.10 (5.24-7.09)	5.66 (4.88-6.84)	14.9 (11.2-18.6)	43.3 (32.8-56.0)	71.8 (59.4-80.2)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.6.

Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	5.64 (5.12-6.21)	5.30 (4.89-5.80)	10.6 (9.41-12.2)	28.2 (24.5-32.1)	57.6 (44.2-68.1)	2466
Age group							
6-11 years	11-12	4.58 (4.16-5.04)	4.77 (4.07-5.49)	8.91 (7.39-10.4)	14.8 (11.1-19.3)	19.3 (14.6-22.8)	394
12-19 years	11-12	4.49 (3.59-5.61)	5.18 (3.54-6.67)	9.16 (7.79-10.2)	15.9 (11.3-25.7)	25.7 (14.1-51.1)	384
20 years and older	11-12	5.97 (5.40-6.61)	5.43 (4.92-6.00)	11.5 (9.82-13.5)	34.3 (28.2-42.3)	61.7 (55.7-72.7)	1688
Gender							
Males	11-12	6.69 (6.18-7.26)	6.21 (5.80-6.87)	11.3 (10.1-13.5)	28.5 (23.6-37.1)	58.0 (38.5-74.9)	1251
Females	11-12	4.78 (4.06-5.63)	4.24 (3.68-4.92)	9.56 (8.20-11.8)	28.2 (20.5-40.0)	57.1 (40.7-69.9)	1215
Race/ethnicity							
Mexican Americans	11-12	5.12 (4.07-6.44)	5.36 (4.37-6.46)	10.2 (8.60-13.4)	20.5 (16.8-24.1)	24.7 (18.5-60.8)	313
Non-Hispanic blacks	11-12	7.22 (6.50-8.03)	6.93 (6.31-7.54)	13.5 (12.2-15.0)	31.7 (23.7-37.7)	58.5 (40.4-73.1)	662
Non-Hispanic whites	11-12	5.57 (4.88-6.36)	5.03 (4.41-5.85)	10.6 (8.66-12.8)	31.4 (25.6-42.3)	58.5 (44.5-69.0)	810
All Hispanics	11-12	5.07 (4.29-6.01)	5.10 (4.46-5.80)	9.82 (8.81-11.5)	20.6 (16.8-24.4)	30.2 (23.2-46.3)	566
Asians	11-12	4.34 (3.83-4.92)	4.62 (3.96-5.13)	8.20 (7.13-9.51)	13.7 (11.6-19.8)	29.9 (16.1-50.6)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.6.

Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	6.24 (5.62-6.92)	5.07 (4.61-5.58)	10.6 (9.15-12.8)	34.1 (28.0-42.8)	59.0 (50.4-66.6)	3330
Age group							
12-19 years	05-06	4.71 (4.13-5.37)	4.12 (3.59-4.99)	7.40 (6.43-8.81)	13.8 (11.3-17.2)	21.1 (14.7-29.6)	1027
20 years and older	05-06	6.52 (5.82-7.30)	5.21 (4.75-5.71)	11.5 (9.42-15.0)	38.0 (30.0-48.4)	61.5 (51.6-71.2)	2303
Gender							
Males	05-06	6.32 (5.62-7.11)	5.09 (4.56-5.65)	11.1 (9.06-15.4)	33.0 (26.6-42.5)	51.0 (45.3-59.9)	1583
Females	05-06	6.16 (5.51-6.89)	5.04 (4.53-5.68)	10.1 (8.91-12.0)	36.4 (28.1-46.6)	66.0 (54.3-71.5)	1747
Race/ethnicity							
Mexican Americans	05-06	5.21 (4.80-5.65)	4.61 (4.36-4.93)	8.31 (7.69-9.33)	14.7 (12.9-16.9)	19.9 (16.6-30.1)	816
Non-Hispanic blacks	05-06	5.77 (5.06-6.57)	4.82 (4.17-5.40)	11.3 (9.34-14.2)	29.1 (23.2-35.6)	45.1 (34.1-59.9)	896
Non-Hispanic whites	05-06	6.58 (5.71-7.58)	5.27 (4.67-5.90)	11.4 (9.15-16.0)	38.2 (28.5-50.4)	65.1 (51.0-72.9)	1364

Urinary N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of 1,3-Butadiene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.44 (5.91-7.02)	5.36 (4.88-5.82)	9.69 (8.71-11.0)	29.9 (25.3-36.2)	52.8 (37.4-73.3)	2464
Age group							
6-11 years	11-12	6.55 (6.05-7.09)	6.46 (5.94-7.00)	9.10 (8.17-10.3)	13.8 (11.2-17.7)	17.7 (13.4-24.5)	393
12-19 years	11-12	4.37 (3.77-5.07)	4.36 (3.57-4.92)	6.27 (5.68-7.64)	11.4 (8.24-17.1)	19.3 (10.9-31.0)	384
20 years and older	11-12	6.82 (6.25-7.44)	5.39 (4.85-6.07)	10.7 (9.51-12.2)	37.1 (29.9-43.3)	64.8 (44.1-84.1)	1687
Gender							
Males	11-12	6.29 (5.83-6.79)	5.38 (4.85-5.83)	9.83 (8.50-11.6)	27.0 (20.4-34.4)	41.9 (37.4-52.1)	1250
Females	11-12	6.59 (5.69-7.64)	5.35 (4.68-6.17)	9.49 (7.93-12.9)	31.5 (19.7-49.2)	68.8 (44.1-89.0)	1214
Race/ethnicity							
Mexican Americans	11-12	5.78 (4.56-7.33)	5.39 (4.72-6.18)	9.51 (7.91-10.9)	17.4 (12.3-28.3)	29.9 (17.1-58.1)	313
Non-Hispanic blacks	11-12	5.63 (5.23-6.07)	4.86 (4.35-5.38)	9.45 (8.29-10.7)	21.9 (17.2-24.3)	34.2 (24.8-40.1)	662
Non-Hispanic whites	11-12	6.81 (6.10-7.61)	5.42 (4.78-6.15)	10.1 (8.68-12.0)	37.2 (27.0-45.2)	68.5 (43.3-89.0)	808
All Hispanics	11-12	5.68 (4.93-6.54)	5.22 (4.72-5.79)	8.78 (7.84-9.81)	18.3 (12.9-25.8)	30.9 (20.2-44.7)	566
Asians	11-12	5.81 (5.41-6.25)	5.25 (4.89-5.64)	8.53 (7.50-9.29)	17.7 (12.1-23.0)	28.2 (22.1-44.2)	341

Urinary 2-Thioxothiazolidine-4-carboxylic acid (2005 – 2006)

Metabolite of Carbon disulfide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	19.3 (17.3-22.0)	52.8 (43.5-65.0)	103 (84.2-126)	3348
Age group							
12-19 years	05-06	*	< LOD	16.4 (13.6-20.5)	50.2 (34.1-68.8)	111 (65.6-143)	1035
20 years and older	05-06	*	< LOD	20.0 (18.1-22.6)	53.0 (43.5-65.3)	102 (84.2-126)	2312
Gender							
Males	05-06	*	< LOD	23.0 (18.8-27.4)	58.9 (46.0-72.9)	127 (96.8-162)	1590
Females	05-06	*	< LOD	16.6 (13.6-19.7)	45.7 (37.6-59.6)	85.1 (68.8-108)	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	16.9 (12.2-22.0)	50.6 (29.1-65.2)	73.7 (54.0-114)	821
Non-Hispanic blacks	05-06	*	12.7 (<LOD-14.7)	33.7 (27.9-36.7)	77.4 (66.4-99.0)	146 (99.0-264)	902
Non-Hispanic whites	05-06	*	< LOD	17.7 (14.6-20.4)	46.2 (37.6-60.7)	96.8 (69.4-124)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 11.2.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Thioxothiazolidine-4-carboxylic acid (2011 – 2012)

Metabolite of Carbon disulfide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	17.7 (14.3-22.2)	51.7 (39.1-64.5)	109 (73.9-145)	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	37.0 (24.2-50.7)	58.5 (41.2-89.7)	394
12-19 years	11-12	*	< LOD	13.2 (<LOD-21.1)	39.0 (21.4-63.5)	91.5 (39.0-138)	384
20 years and older	11-12	*	< LOD	19.5 (14.9-25.1)	56.7 (42.4-69.6)	118 (91.1-147)	1688
Gender							
Males	11-12	*	< LOD	23.2 (17.0-28.8)	62.5 (46.7-96.0)	123 (99.6-157)	1251
Females	11-12	*	< LOD	13.9 (<LOD-18.1)	36.7 (28.1-52.9)	73.9 (49.8-134)	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	15.7 (<LOD-22.6)	42.6 (32.6-59.3)	65.4 (52.3-104)	313
Non-Hispanic blacks	11-12	*	< LOD	25.6 (21.1-29.6)	63.1 (51.3-75.0)	125 (75.0-177)	662
Non-Hispanic whites	11-12	*	< LOD	16.0 (11.6-23.4)	46.7 (34.1-70.0)	111 (65.7-159)	810
All Hispanics	11-12	*	< LOD	13.6 (<LOD-19.1)	38.9 (29.8-55.1)	65.4 (55.1-92.5)	566
Asians	11-12	*	< LOD	31.1 (20.6-45.6)	121 (68.0-180)	225 (130-558)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 11.2.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Thioxothiazolidine-4-carboxylic acid (creatinine corrected) (2005 – 2006)

Metabolite of Carbon disulfide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	23.3 (21.4-26.3)	49.5 (45.0-56.6)	92.8 (73.1-115)	3347
Age group							
12-19 years	05-06	*	< LOD	15.8 (14.1-18.9)	35.3 (28.8-49.4)	66.8 (49.5-104)	1034
20 years and older	05-06	*	< LOD	24.8 (22.0-28.1)	52.2 (46.0-60.1)	93.0 (75.8-117)	2312
Gender							
Males	05-06	*	< LOD	20.8 (17.5-24.0)	45.0 (36.7-56.4)	89.5 (60.9-116)	1590
Females	05-06	*	< LOD	26.4 (22.7-30.5)	54.9 (46.6-62.1)	92.8 (72.0-136)	1756
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	20.1 (16.9-23.5)	41.1 (34.4-52.8)	69.9 (52.8-83.8)	820
Non-Hispanic blacks	05-06	*	10.2 (<LOD-11.3)	21.6 (18.8-27.3)	55.7 (41.4-76.9)	102 (71.5-147)	901
Non-Hispanic whites	05-06	*	< LOD	24.0 (21.4-26.9)	48.2 (42.6-57.5)	88.5 (73.1-104)	1370

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Thioxothiazolidine-4-carboxylic acid (creatinine corrected) (2011 – 2012)

Metabolite of Carbon disulfide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	26.8 (23.9-29.3)	58.0 (49.6-71.8)	107 (93.8-136)	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	50.2 (41.6-60.8)	87.8 (56.4-123)	393
12-19 years	11-12	*	< LOD	20.8 (<LOD-27.6)	37.9 (29.3-66.7)	87.8 (31.6-113)	384
20 years and older	11-12	*	< LOD	27.5 (24.9-29.8)	62.3 (51.4-79.1)	134 (86.0-176)	1687
Gender							
Males	11-12	*	< LOD	23.2 (21.0-27.2)	53.5 (44.6-68.0)	110 (75.8-147)	1250
Females	11-12	*	< LOD	29.3 (<LOD-31.6)	61.7 (44.0-87.8)	106 (87.8-142)	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	23.1 (<LOD-28.6)	41.6 (29.4-58.4)	61.1 (37.0-198)	313
Non-Hispanic blacks	11-12	*	< LOD	21.4 (18.0-24.7)	55.5 (44.2-66.0)	103 (71.8-135)	662
Non-Hispanic whites	11-12	*	< LOD	27.2 (23.9-30.4)	60.8 (46.5-81.0)	110 (81.0-153)	808
All Hispanics	11-12	*	< LOD	23.2 (<LOD-29.4)	44.2 (34.0-56.3)	62.4 (49.2-156)	566
Asians	11-12	*	< LOD	44.7 (35.9-62.7)	128 (79.0-198)	227 (142-421)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (2005 – 2006)

Metabolite of Crotonaldehyde

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	425 (386-467)	406 (376-433)	800 (707-967)	2210 (1760-2530)	3560 (3230-3760)	3347
Age group							
12-19 years	05-06	381 (336-433)	394 (349-434)	637 (581-688)	1020 (795-1200)	1650 (1110-2460)	1032
20 years and older	05-06	432 (389-480)	410 (368-444)	848 (734-1040)	2370 (1950-2930)	3660 (3480-4120)	2310
Gender							
Males	05-06	505 (453-562)	476 (433-537)	947 (760-1110)	2450 (1980-3000)	3630 (3360-4120)	1590
Females	05-06	360 (328-395)	340 (325-355)	701 (625-800)	1790 (1600-2210)	3230 (2570-3900)	1755
Race/ethnicity							
Mexican Americans	05-06	382 (342-427)	391 (348-423)	650 (553-756)	1230 (1010-1550)	1970 (1710-2240)	820
Non-Hispanic blacks	05-06	516 (452-589)	444 (406-493)	920 (722-1280)	2490 (1950-3040)	3660 (3140-4220)	901
Non-Hispanic whites	05-06	424 (372-483)	404 (356-448)	838 (708-1050)	2360 (1740-3010)	3660 (3290-4450)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 2.0.

Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (2011 – 2012)

Metabolite of Crotonaldehyde

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	443 (417-471)	419 (383-446)	806 (735-856)	2000 (1720-2340)	3700 (3100-4230)	2466
Age group							
6-11 years	11-12	318 (291-347)	347 (312-400)	569 (501-629)	861 (762-937)	1190 (871-1500)	394
12-19 years	11-12	350 (292-421)	360 (301-439)	631 (532-750)	1130 (858-2190)	2200 (1100-4040)	384
20 years and older	11-12	477 (448-507)	439 (392-470)	874 (809-970)	2350 (2000-2730)	4160 (3580-4450)	1688
Gender							
Males	11-12	507 (470-546)	467 (425-502)	848 (746-982)	2010 (1520-2660)	3840 (3010-4320)	1251
Females	11-12	390 (349-435)	352 (304-413)	733 (630-834)	2000 (1360-2490)	3520 (2980-4190)	1215
Race/ethnicity							
Mexican Americans	11-12	389 (320-474)	393 (300-496)	767 (655-856)	1330 (990-1800)	2350 (1460-3010)	313
Non-Hispanic blacks	11-12	511 (454-576)	480 (446-525)	794 (691-899)	2190 (1530-2690)	3350 (2650-4850)	662
Non-Hispanic whites	11-12	449 (411-492)	422 (366-456)	834 (706-930)	2120 (1680-2660)	3880 (3290-4370)	810
All Hispanics	11-12	398 (348-455)	384 (333-451)	751 (651-838)	1460 (1080-2060)	2600 (1910-3270)	566
Asians	11-12	336 (294-383)	339 (313-384)	588 (521-694)	1140 (944-1580)	1830 (1160-3090)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 2.0.

Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Crotonaldehyde

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	426 (383-473)	328 (304-351)	651 (552-780)	2020 (1530-2540)	3390 (2870-3820)	3332
Age group							
12-19 years	05-06	292 (269-317)	259 (240-281)	384 (336-412)	654 (526-795)	887 (701-1390)	1027
20 years and older	05-06	452 (402-508)	344 (314-377)	717 (613-934)	2190 (1820-2800)	3630 (3160-4090)	2304
Gender							
Males	05-06	413 (366-467)	318 (291-355)	653 (525-844)	1940 (1350-2490)	3040 (2440-3660)	1583
Females	05-06	438 (396-485)	335 (313-366)	641 (552-774)	2140 (1610-2650)	3680 (3290-4110)	1748
Race/ethnicity							
Mexican Americans	05-06	343 (316-373)	299 (287-315)	446 (398-527)	887 (701-1140)	1390 (1080-1910)	816
Non-Hispanic blacks	05-06	355 (312-405)	279 (250-311)	565 (445-804)	1560 (1300-1860)	2360 (1880-3090)	897
Non-Hispanic whites	05-06	458 (399-524)	344 (309-393)	707 (598-1020)	2350 (1820-3040)	3680 (3330-4120)	1365

Urinary N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Crotonaldehyde

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	506 (473-540)	398 (370-419)	683 (613-760)	2050 (1720-2490)	3970 (3220-5200)	2464
Age group							
6-11 years	11-12	450 (421-480)	425 (395-449)	534 (501-611)	843 (635-1110)	1100 (785-1970)	393
12-19 years	11-12	341 (300-388)	308 (257-336)	431 (376-502)	909 (534-1430)	1430 (763-2400)	384
20 years and older	11-12	543 (508-581)	408 (385-432)	760 (693-920)	2610 (2020-3280)	4700 (3510-5830)	1687
Gender							
Males	11-12	476 (442-511)	377 (351-405)	654 (600-770)	1780 (1480-2170)	3170 (2350-4230)	1250
Females	11-12	536 (483-596)	410 (379-444)	698 (605-855)	2700 (1570-3800)	4700 (3350-5710)	1214
Race/ethnicity							
Mexican Americans	11-12	439 (361-535)	362 (320-424)	581 (479-698)	1430 (1090-1850)	2240 (1660-4310)	313
Non-Hispanic blacks	11-12	399 (364-437)	322 (293-360)	536 (471-641)	1450 (1050-1780)	2070 (1800-2680)	662
Non-Hispanic whites	11-12	548 (506-594)	411 (388-444)	730 (628-932)	2700 (1720-3550)	4700 (3280-6190)	808
All Hispanics	11-12	445 (395-502)	361 (325-405)	607 (519-712)	1650 (1220-2020)	2700 (1850-3440)	566
Asians	11-12	449 (415-486)	393 (353-433)	575 (508-640)	1110 (806-1680)	2000 (1350-2410)	341

Urinary 2-Aminothiazoline-4-carboxylic acid (2005 – 2006)

Metabolite of Cyanide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	66.0 (55.8-78.1)	88.1 (73.0-105)	212 (197-226)	379 (336-406)	497 (459-546)	3349
Age group							
12-19 years	05-06	74.7 (61.3-91.0)	120 (93.3-146)	257 (221-290)	436 (399-504)	590 (497-684)	1034
20 years and older	05-06	64.8 (54.4-77.0)	84.7 (68.6-103)	204 (188-220)	365 (326-398)	481 (450-533)	2313
Gender							
Males	05-06	*	55.5 (25.3-80.2)	159 (143-174)	293 (270-325)	426 (381-456)	1590
Females	05-06	91.3 (78.2-107)	125 (106-143)	266 (233-288)	429 (387-465)	547 (490-628)	1756
Race/ethnicity							
Mexican Americans	05-06	90.4 (79.5-103)	131 (119-152)	275 (248-299)	480 (426-560)	667 (574-753)	820
Non-Hispanic blacks	05-06	73.9 (57.2-95.5)	117 (87.4-148)	274 (234-311)	458 (383-548)	603 (557-694)	900
Non-Hispanic whites	05-06	61.6 (51.0-74.4)	80.2 (62.7-102)	188 (173-207)	340 (303-389)	456 (404-497)	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 15.0.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Aminothiazoline-4-carboxylic acid (2011 – 2012)

Metabolite of Cyanide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	110 (101-120)	120 (106-133)	234 (212-249)	410 (364-441)	558 (500-622)	2466
Age group							
6-11 years	11-12	247 (227-270)	270 (239-308)	482 (394-583)	718 (641-835)	911 (749-1090)	394
12-19 years	11-12	118 (97.2-143)	133 (100-159)	266 (232-334)	435 (347-562)	583 (435-923)	384
20 years and older	11-12	99.8 (90.3-110)	106 (98.9-121)	201 (181-228)	348 (304-407)	483 (393-545)	1688
Gender							
Males	11-12	92.0 (84.1-101)	98.4 (82.4-109)	191 (169-211)	361 (314-386)	493 (414-586)	1251
Females	11-12	131 (116-148)	147 (131-162)	275 (246-303)	447 (401-515)	589 (514-757)	1215
Race/ethnicity							
Mexican Americans	11-12	135 (109-168)	144 (106-184)	271 (191-374)	501 (364-671)	728 (537-872)	313
Non-Hispanic blacks	11-12	142 (124-163)	163 (122-201)	315 (264-383)	534 (485-604)	728 (651-816)	662
Non-Hispanic whites	11-12	99.5 (91.2-109)	107 (99.0-125)	202 (182-229)	356 (331-391)	482 (419-553)	810
All Hispanics	11-12	135 (117-156)	139 (114-170)	268 (212-310)	483 (374-589)	671 (537-835)	566
Asians	11-12	114 (100-131)	114 (102-130)	225 (181-290)	424 (335-520)	543 (440-671)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 15.0.

Urinary 2-Aminothiazoline-4-carboxylic acid (creatinine corrected) (2005 – 2006)

Metabolite of Cyanide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	66.2 (54.9-79.8)	94.1 (81.5-106)	211 (191-231)	353 (332-374)	469 (424-497)	3340
Age group							
12-19 years	05-06	57.2 (45.1-72.6)	96.1 (73.8-114)	194 (167-223)	318 (267-362)	398 (362-450)	1029
20 years and older	05-06	67.7 (56.1-81.8)	94.0 (80.4-107)	216 (194-234)	354 (334-385)	474 (429-501)	2307
Gender							
Males	05-06	*	49.2 (35.8-65.7)	114 (107-121)	241 (208-268)	344 (320-395)	1586
Females	05-06	111 (92.5-133)	153 (135-181)	263 (244-294)	403 (375-442)	528 (485-574)	1753
Race/ethnicity							
Mexican Americans	05-06	81.1 (70.4-93.4)	122 (103-145)	234 (219-249)	383 (353-434)	521 (468-581)	817
Non-Hispanic blacks	05-06	50.9 (39.5-65.7)	84.4 (67.7-101)	178 (158-196)	322 (283-355)	418 (366-481)	899
Non-Hispanic whites	05-06	66.4 (54.2-81.4)	91.2 (73.5-107)	210 (185-235)	353 (321-385)	465 (417-501)	1368

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary 2-Aminothiazoline-4-carboxylic acid (creatinine corrected) (2011 – 2012)

Metabolite of Cyanide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	126 (118-134)	135 (123-147)	249 (228-272)	413 (380-438)	539 (489-588)	2464
Age group							
6-11 years	11-12	352 (323-384)	375 (329-418)	540 (472-628)	742 (634-859)	926 (747-1000)	393
12-19 years	11-12	115 (101-131)	125 (113-151)	214 (183-240)	338 (255-438)	438 (307-591)	384
20 years and older	11-12	114 (105-123)	120 (111-134)	221 (201-241)	363 (336-379)	444 (411-514)	1687
Gender							
Males	11-12	86.4 (79.1-94.3)	80.2 (73.1-91.6)	169 (142-199)	328 (298-375)	471 (426-539)	1250
Females	11-12	181 (166-196)	189 (171-204)	312 (286-337)	440 (413-489)	577 (520-624)	1214
Race/ethnicity							
Mexican Americans	11-12	153 (121-192)	178 (149-215)	300 (228-353)	438 (363-539)	585 (450-800)	313
Non-Hispanic blacks	11-12	111 (98.4-125)	125 (106-147)	245 (212-276)	396 (325-458)	504 (445-544)	662
Non-Hispanic whites	11-12	121 (113-131)	123 (112-136)	230 (217-256)	413 (373-440)	539 (458-605)	808
All Hispanics	11-12	152 (130-177)	178 (153-201)	286 (253-331)	423 (359-483)	568 (454-749)	566
Asians	11-12	153 (137-172)	158 (141-190)	265 (232-309)	439 (342-525)	547 (459-691)	341

Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (2005 – 2006)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	137 (125-149)	139 (124-157)	302 (265-333)	600 (555-666)	883 (773-1030)	3344
Age group							
12-19 years	05-06	95.8 (84.4-109)	98.8 (85.2-114)	179 (156-216)	323 (276-395)	490 (400-636)	1030
20 years and older	05-06	144 (131-159)	150 (131-169)	327 (290-362)	643 (577-699)	941 (837-1070)	2310
Gender							
Males	05-06	158 (143-176)	162 (139-185)	344 (315-383)	625 (566-686)	877 (754-1000)	1588
Females	05-06	118 (107-131)	118 (103-139)	257 (230-289)	577 (490-679)	903 (707-1220)	1753
Race/ethnicity							
Mexican Americans	05-06	104 (95.4-113)	109 (96.4-123)	205 (177-234)	379 (306-509)	578 (489-735)	818
Non-Hispanic blacks	05-06	139 (124-157)	131 (118-149)	293 (233-367)	628 (447-808)	871 (743-1030)	899
Non-Hispanic whites	05-06	144 (128-163)	151 (131-174)	327 (280-383)	653 (562-718)	983 (774-1120)	1365

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 6.26.

Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (2011 – 2012)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	138 (129-149)	136 (124-145)	289 (252-326)	557 (481-660)	847 (703-1010)	2466
Age group							
6-11 years	11-12	59.1 (53.3-65.4)	64.2 (57.0-70.9)	111 (98.0-120)	159 (125-192)	192 (140-217)	394
12-19 years	11-12	87.7 (73.8-104)	84.7 (70.2-104)	163 (141-183)	279 (224-413)	446 (364-568)	384
20 years and older	11-12	163 (151-176)	163 (148-180)	333 (302-364)	655 (564-702)	975 (773-1130)	1688
Gender							
Males	11-12	153 (139-168)	151 (132-176)	289 (250-338)	540 (446-665)	882 (661-1130)	1251
Females	11-12	126 (113-140)	120 (108-138)	287 (228-333)	575 (456-702)	838 (686-1050)	1215
Race/ethnicity							
Mexican Americans	11-12	97.9 (83.0-116)	95.2 (78.9-116)	193 (161-211)	292 (238-378)	468 (316-732)	313
Non-Hispanic blacks	11-12	122 (110-135)	116 (106-132)	230 (195-252)	471 (361-572)	696 (584-791)	662
Non-Hispanic whites	11-12	157 (143-173)	158 (140-180)	333 (302-363)	629 (526-702)	969 (715-1130)	810
All Hispanics	11-12	107 (87.6-129)	108 (87.8-130)	208 (159-259)	372 (286-452)	534 (420-725)	566
Asians	11-12	79.9 (69.3-92.1)	77.3 (66.1-92.0)	161 (131-201)	299 (235-400)	522 (368-622)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 6.26.

Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	137 (125-150)	135 (122-148)	252 (225-284)	534 (469-572)	780 (654-932)	3332
Age group							
12-19 years	05-06	73.4 (68.7-78.4)	69.5 (64.2-75.8)	114 (103-128)	218 (183-252)	314 (232-405)	1027
20 years and older	05-06	151 (136-168)	151 (135-167)	279 (246-317)	565 (514-600)	844 (700-989)	2304
Gender							
Males	05-06	130 (116-146)	128 (114-144)	237 (212-274)	458 (403-537)	596 (562-716)	1584
Females	05-06	144 (131-158)	144 (125-158)	270 (238-300)	584 (533-653)	960 (803-1050)	1748
Race/ethnicity							
Mexican Americans	05-06	93.1 (86.2-101)	92.1 (82.6-101)	155 (138-174)	254 (217-297)	373 (282-565)	816
Non-Hispanic blacks	05-06	96.0 (88.4-104)	90.6 (81.8-99.6)	182 (159-207)	359 (280-417)	538 (407-596)	896
Non-Hispanic whites	05-06	156 (138-176)	156 (136-178)	294 (249-357)	579 (516-654)	880 (716-1040)	1365

Urinary N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of N,N-Dimethylformamide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	158 (147-170)	146 (136-155)	279 (257-315)	541 (454-649)	849 (693-959)	2464
Age group							
6-11 years	11-12	84.7 (80.4-89.2)	82.3 (78.8-86.2)	110 (100-124)	152 (131-166)	171 (143-221)	393
12-19 years	11-12	85.4 (75.4-96.9)	77.7 (64.3-101)	121 (108-142)	191 (169-243)	262 (196-364)	384
20 years and older	11-12	186 (173-199)	176 (164-190)	336 (308-364)	649 (525-747)	892 (781-1000)	1687
Gender							
Males	11-12	144 (131-158)	136 (121-152)	245 (206-294)	458 (379-593)	711 (547-836)	1250
Females	11-12	173 (158-190)	156 (145-173)	321 (271-362)	686 (494-849)	921 (850-997)	1214
Race/ethnicity							
Mexican Americans	11-12	111 (93.6-131)	98.4 (90.2-108)	170 (136-206)	286 (212-382)	442 (281-1080)	313
Non-Hispanic blacks	11-12	94.8 (87.1-103)	86.3 (77.1-95.6)	155 (133-176)	290 (257-330)	438 (353-526)	662
Non-Hispanic whites	11-12	192 (179-207)	178 (160-197)	356 (313-378)	692 (536-833)	921 (849-1000)	808
All Hispanics	11-12	119 (105-136)	108 (98.8-121)	183 (159-226)	336 (265-436)	500 (414-557)	566
Asians	11-12	107 (97.5-117)	107 (92.0-122)	174 (150-198)	280 (240-338)	397 (292-533)	341

Urinary Phenylglyoxylic acid (2005 – 2006)

Metabolite of Ethylbenzene and Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	98.8 (88.8-110)	144 (129-160)	305 (272-328)	483 (458-518)	664 (602-700)	3346
Age group							
12-19 years	05-06	109 (91.2-131)	157 (125-200)	318 (288-352)	474 (432-548)	602 (499-713)	1029
20 years and older	05-06	97.3 (87.3-108)	140 (125-158)	299 (267-325)	484 (457-518)	670 (604-722)	2312
Gender							
Males	05-06	115 (101-131)	173 (156-191)	329 (300-358)	523 (480-593)	699 (666-761)	1588
Females	05-06	85.8 (75.3-97.7)	118 (102-138)	263 (240-300)	452 (396-491)	590 (507-660)	1755
Race/ethnicity							
Mexican Americans	05-06	107 (84.2-137)	150 (107-196)	299 (260-333)	448 (402-538)	593 (534-672)	820
Non-Hispanic blacks	05-06	122 (97.5-152)	178 (145-212)	334 (316-362)	523 (476-577)	660 (577-715)	899
Non-Hispanic whites	05-06	93.5 (84.2-104)	135 (118-152)	297 (268-321)	482 (453-518)	689 (606-742)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 12.0.

Biomonitoring Summaries

http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheets

<http://www.cdc.gov/biomonitoring/>

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary Phenylglyoxylic acid (2011 – 2012)

Metabolite of Ethylbenzene and Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	177 (165-191)	199 (184-212)	334 (314-359)	491 (451-559)	706 (630-789)	2466
Age group							
6-11 years	11-12	161 (148-176)	184 (161-202)	282 (255-312)	393 (347-456)	508 (393-594)	394
12-19 years	11-12	173 (152-197)	193 (165-222)	341 (307-392)	468 (423-579)	662 (505-872)	384
20 years and older	11-12	180 (165-197)	203 (184-219)	341 (314-369)	514 (448-596)	732 (653-842)	1688
Gender							
Males	11-12	201 (179-226)	225 (198-248)	369 (329-411)	540 (468-588)	789 (592-900)	1251
Females	11-12	157 (143-172)	171 (157-193)	298 (273-332)	447 (412-518)	660 (502-771)	1215
Race/ethnicity							
Mexican Americans	11-12	149 (123-181)	166 (141-185)	279 (209-347)	423 (347-505)	505 (431-706)	313
Non-Hispanic blacks	11-12	217 (198-237)	229 (204-255)	369 (342-390)	570 (489-647)	771 (683-937)	662
Non-Hispanic whites	11-12	180 (165-196)	205 (184-220)	340 (316-365)	493 (439-585)	726 (578-861)	810
All Hispanics	11-12	154 (130-183)	169 (146-192)	283 (233-359)	442 (393-558)	604 (464-711)	566
Asians	11-12	139 (120-160)	161 (131-187)	266 (221-302)	398 (330-489)	518 (410-617)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.0.

Urinary Phenylglyoxylic acid (creatinine corrected) (2005 – 2006)

Metabolite of Ethylbenzene and Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	99.1 (89.5-110)	136 (126-149)	220 (208-238)	328 (308-362)	434 (414-467)	3334
Age group							
12-19 years	05-06	83.6 (71.9-97.2)	122 (107-137)	198 (180-208)	274 (249-321)	335 (308-403)	1027
20 years and older	05-06	102 (91.7-113)	139 (128-152)	226 (213-243)	336 (309-382)	451 (423-499)	2305
Gender							
Males	05-06	93.9 (83.2-106)	133 (120-148)	212 (203-220)	314 (296-334)	429 (399-445)	1585
Females	05-06	104 (93.1-117)	140 (126-156)	235 (215-253)	345 (314-379)	451 (423-498)	1749
Race/ethnicity							
Mexican Americans	05-06	96.3 (78.5-118)	131 (103-164)	210 (187-236)	291 (252-376)	382 (304-451)	816
Non-Hispanic blacks	05-06	83.9 (68.2-103)	129 (113-139)	189 (167-214)	285 (255-328)	372 (328-433)	896
Non-Hispanic whites	05-06	101 (91.4-111)	138 (127-155)	229 (213-247)	352 (314-402)	464 (429-509)	1365

Biomonitoring Summaries

http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheets

<http://www.cdc.gov/biomonitoring/>

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary Phenylglyoxylic acid (creatinine corrected) (2011 – 2012)

Metabolite of Ethylbenzene and Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	202 (189-217)	206 (195-219)	285 (269-301)	401 (377-426)	518 (468-568)	2464
Age group							
6-11 years	11-12	231 (219-244)	239 (221-256)	310 (297-323)	411 (377-436)	467 (416-502)	393
12-19 years	11-12	168 (150-189)	181 (167-193)	239 (212-256)	285 (261-336)	368 (285-550)	384
20 years and older	11-12	205 (191-220)	207 (195-220)	288 (272-310)	413 (384-442)	536 (482-602)	1687
Gender							
Males	11-12	189 (174-205)	194 (178-207)	270 (244-299)	400 (367-418)	517 (481-538)	1250
Females	11-12	217 (199-235)	223 (202-239)	291 (274-318)	404 (366-460)	536 (448-598)	1214
Race/ethnicity							
Mexican Americans	11-12	168 (135-210)	177 (160-198)	240 (220-265)	311 (267-413)	413 (311-520)	313
Non-Hispanic blacks	11-12	169 (160-179)	171 (158-180)	233 (221-243)	308 (291-334)	395 (355-431)	662
Non-Hispanic whites	11-12	220 (207-234)	224 (210-233)	304 (281-336)	426 (395-481)	562 (481-660)	808
All Hispanics	11-12	173 (150-199)	179 (164-197)	243 (226-265)	317 (295-344)	390 (354-476)	566
Asians	11-12	186 (169-204)	187 (173-208)	257 (241-277)	336 (315-381)	419 (351-515)	341

Biomonitoring Summaries

http://www.cdc.gov/biomonitoring/Ethylbenzene_BiomonitoringSummary.html

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheets

<http://www.cdc.gov/biomonitoring/>

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (2005 – 2006)

Metabolite of Propylene oxide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	36.7 (34.5-39.0)	37.7 (35.3-40.4)	73.4 (68.8-79.4)	149 (127-177)	233 (204-274)	3349
Age group							
12-19 years	05-06	38.6 (34.5-43.3)	39.8 (36.0-44.8)	71.4 (62.3-78.7)	122 (94.0-163)	179 (122-348)	1033
20 years and older	05-06	36.4 (34.0-38.9)	37.5 (34.8-40.1)	74.7 (68.1-80.7)	153 (131-183)	239 (214-274)	2313
Gender							
Males	05-06	43.0 (39.8-46.6)	43.6 (38.4-48.2)	80.0 (73.4-90.7)	166 (134-204)	253 (204-343)	1591
Females	05-06	31.5 (28.8-34.4)	32.5 (30.0-36.2)	64.8 (59.1-72.1)	134 (118-161)	220 (185-252)	1755
Race/ethnicity							
Mexican Americans	05-06	36.2 (32.4-40.5)	38.3 (34.4-44.0)	70.8 (60.3-80.7)	136 (114-154)	198 (150-259)	820
Non-Hispanic blacks	05-06	46.6 (42.4-51.1)	48.0 (43.7-52.0)	86.0 (72.1-106)	160 (134-196)	219 (196-287)	901
Non-Hispanic whites	05-06	35.8 (32.7-39.2)	36.3 (33.0-39.5)	73.4 (66.0-80.7)	150 (120-185)	247 (204-294)	1370

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 5.3.

Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (2011 – 2012)

Metabolite of Propylene oxide

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	32.1 (29.3-35.1)	30.6 (27.6-32.7)	60.2 (55.8-64.6)	124 (111-142)	249 (181-313)	2466
Age group							
6-11 years	11-12	24.8 (21.7-28.3)	24.2 (21.2-29.6)	40.9 (36.8-52.0)	77.7 (63.5-95.2)	129 (88.1-160)	394
12-19 years	11-12	26.2 (21.6-31.7)	26.0 (21.3-31.8)	47.5 (39.6-58.5)	81.5 (58.5-105)	112 (82.1-203)	384
20 years and older	11-12	34.1 (30.8-37.7)	32.1 (29.6-33.8)	65.7 (59.6-71.1)	142 (120-167)	286 (199-382)	1688
Gender							
Males	11-12	34.6 (31.0-38.6)	32.7 (29.7-35.9)	61.3 (52.1-70.6)	107 (95.7-140)	202 (142-270)	1251
Females	11-12	29.9 (25.9-34.5)	26.8 (23.3-31.8)	59.1 (49.9-67.8)	137 (121-162)	293 (167-442)	1215
Race/ethnicity							
Mexican Americans	11-12	32.9 (27.8-39.0)	31.8 (26.0-37.0)	53.6 (45.6-62.4)	101 (81.0-178)	205 (111-498)	313
Non-Hispanic blacks	11-12	37.2 (32.9-42.0)	35.6 (32.9-39.7)	64.0 (58.0-71.1)	120 (103-142)	182 (148-211)	662
Non-Hispanic whites	11-12	32.0 (28.5-35.9)	29.7 (25.5-32.8)	61.8 (54.7-68.4)	130 (107-162)	286 (178-392)	810
All Hispanics	11-12	30.7 (26.4-35.8)	28.9 (24.7-33.6)	52.2 (42.6-66.2)	101 (82.6-147)	191 (138-235)	566
Asians	11-12	25.8 (22.0-30.3)	24.4 (21.8-29.1)	48.4 (40.6-59.6)	99.0 (78.8-117)	202 (110-320)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.3.

Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Propylene oxide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	36.8 (34.1-39.7)	33.4 (30.6-37.2)	62.0 (57.6-68.8)	131 (119-144)	183 (166-196)	3333
Age group							
12-19 years	05-06	29.6 (27.9-31.4)	28.5 (26.6-30.6)	45.1 (42.2-48.0)	81.2 (69.8-93.0)	124 (88.6-159)	1027
20 years and older	05-06	38.1 (35.1-41.3)	34.3 (32.0-38.4)	65.9 (59.5-73.4)	138 (123-151)	188 (169-220)	2306
Gender							
Males	05-06	35.3 (32.3-38.4)	32.2 (30.2-35.2)	59.4 (52.6-67.8)	117 (93.5-144)	169 (139-212)	1583
Females	05-06	38.3 (34.1-43.1)	34.4 (30.3-39.9)	67.9 (59.8-77.6)	142 (123-158)	195 (170-229)	1750
Race/ethnicity							
Mexican Americans	05-06	32.5 (29.4-35.9)	32.5 (29.6-34.3)	51.9 (47.6-57.8)	92.6 (78.5-103)	130 (105-165)	816
Non-Hispanic blacks	05-06	32.1 (30.1-34.2)	30.3 (28.5-32.6)	53.2 (44.6-60.2)	100 (81.5-125)	141 (124-163)	897
Non-Hispanic whites	05-06	38.6 (34.6-43.1)	34.6 (30.4-40.8)	67.8 (60.4-77.6)	145 (125-161)	196 (173-235)	1365

Urinary N-Acetyl-S-(2-hydroxypropyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Propylene oxide

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	36.6 (33.3-40.2)	30.9 (28.8-32.4)	55.1 (51.7-61.8)	121 (105-143)	220 (189-315)	2464
Age group							
6-11 years	11-12	35.3 (31.8-39.2)	32.3 (29.3-34.4)	50.7 (44.9-56.0)	87.6 (63.7-118)	128 (87.6-187)	393
12-19 years	11-12	25.5 (22.9-28.3)	23.1 (20.8-24.7)	36.5 (31.7-43.1)	53.7 (44.0-76.0)	85.5 (62.7-118)	384
20 years and older	11-12	38.8 (35.0-43.1)	31.9 (29.8-34.5)	61.5 (53.6-70.4)	141 (121-167)	269 (198-426)	1687
Gender							
Males	11-12	32.4 (29.7-35.5)	28.8 (27.0-31.3)	47.4 (43.6-53.5)	88.2 (72.6-113)	143 (118-201)	1250
Females	11-12	41.2 (34.8-48.7)	32.8 (28.8-37.3)	68.5 (54.2-79.7)	164 (122-208)	324 (190-878)	1214
Race/ethnicity							
Mexican Americans	11-12	37.2 (32.6-42.3)	30.1 (28.4-34.3)	52.5 (44.6-63.1)	113 (80.9-141)	191 (101-905)	313
Non-Hispanic blacks	11-12	29.0 (25.8-32.6)	26.4 (23.4-30.3)	44.5 (40.6-49.0)	81.6 (66.6-93.8)	122 (93.8-167)	662
Non-Hispanic whites	11-12	39.0 (34.9-43.7)	31.9 (29.2-34.5)	60.7 (53.0-70.4)	143 (111-179)	267 (190-426)	808
All Hispanics	11-12	34.4 (31.1-38.0)	29.1 (27.6-31.2)	47.6 (42.6-56.1)	96.5 (74.3-128)	161 (106-291)	566
Asians	11-12	34.5 (28.7-41.4)	30.0 (24.7-35.9)	57.9 (45.3-71.1)	118 (84.8-209)	251 (134-373)	341

Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine (2005 – 2006)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	1.87 (1.59-2.22)	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	1.51 (<LOD-3.00)	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	1.87 (1.57-2.32)	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	1.95 (1.57-2.48)	1592
Females	05-06	*	< LOD	< LOD	< LOD	1.73 (<LOD-2.91)	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	1.16 (<LOD-1.66)	2.44 (1.61-4.51)	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	1.21 (<LOD-1.73)	3.03 (1.78-4.36)	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	1.49 (<LOD-2.15)	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine (2011 – 2012)**

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	.933 (.843-1.04)	1.90 (1.74-2.17)	3.20 (2.75-3.63)	2466
Age group							
6-11 years	11-12	*	< LOD	.929 (<LOD-1.12)	1.98 (1.42-3.06)	3.21 (1.98-5.67)	394
12-19 years	11-12	*	< LOD	.882 (<LOD-1.11)	1.88 (1.42-2.16)	2.50 (1.90-4.61)	384
20 years and older	11-12	*	< LOD	.942 (.819-1.08)	1.91 (1.66-2.32)	3.26 (2.71-3.93)	1688
Gender							
Males	11-12	*	< LOD	.988 (.820-1.19)	2.06 (1.80-2.70)	3.60 (2.71-5.41)	1251
Females	11-12	*	< LOD	.887 (.807-.987)	1.75 (1.58-1.85)	2.95 (2.27-3.26)	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	.887 (.706-1.09)	1.69 (1.51-1.93)	2.39 (1.73-3.87)	313
Non-Hispanic blacks	11-12	*	< LOD	1.40 (1.23-1.58)	3.02 (2.39-3.56)	4.14 (3.56-5.65)	662
Non-Hispanic whites	11-12	*	< LOD	.807 (<LOD-.920)	1.79 (1.57-1.93)	2.95 (2.13-3.57)	810
All Hispanics	11-12	*	< LOD	1.04 (.865-1.26)	1.93 (1.69-2.39)	2.99 (2.24-3.69)	566
Asians	11-12	*	< LOD	< LOD	1.34 (1.01-1.73)	1.95 (1.35-2.83)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

**Concentrations of N-Acetyl-S-(1-phenyl-2-hydroxyethyl) and (2-phenyl-2-hydroxyethyl)-L-cysteine were measured together and are reported as N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine.

Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	2.66 (2.25-3.09)	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	1.65 (<LOD-2.25)	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	2.73 (2.41-3.09)	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	2.06 (1.77-2.61)	1592
Females	05-06	*	< LOD	< LOD	< LOD	2.91 (<LOD-3.81)	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	1.65 (<LOD-2.06)	2.36 (1.68-4.13)	821
Non-Hispanic blacks	05-06	*	< LOD	< LOD	1.37 (<LOD-1.63)	2.25 (1.71-2.87)	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	2.66 (<LOD-3.09)	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine (creatinine corrected) (2011 – 2012)**

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	1.34 (1.27-1.41)	2.28 (2.06-2.61)	3.34 (2.75-4.13)	2464
Age group							
6-11 years	11-12	*	< LOD	1.64 (<LOD-1.83)	2.61 (2.06-3.45)	3.81 (2.90-5.50)	393
12-19 years	11-12	*	< LOD	1.15 (<LOD-1.30)	1.96 (1.38-2.61)	3.09 (1.85-5.50)	384
20 years and older	11-12	*	< LOD	1.34 (1.27-1.43)	2.36 (2.06-2.64)	3.34 (2.75-4.13)	1687
Gender							
Males	11-12	*	< LOD	1.13 (1.05-1.24)	1.96 (1.71-2.17)	2.91 (2.61-3.34)	1250
Females	11-12	*	< LOD	1.60 (1.40-1.77)	2.48 (2.17-2.85)	3.81 (2.75-4.88)	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	1.21 (1.10-1.38)	2.23 (1.77-2.61)	2.69 (2.29-3.30)	313
Non-Hispanic blacks	11-12	*	< LOD	1.17 (1.05-1.26)	1.89 (1.72-2.38)	2.91 (2.47-3.54)	662
Non-Hispanic whites	11-12	*	< LOD	1.34 (<LOD-1.48)	2.35 (1.98-2.75)	3.45 (2.82-4.31)	808
All Hispanics	11-12	*	< LOD	1.36 (1.20-1.46)	2.19 (1.98-2.59)	2.75 (2.61-3.09)	566
Asians	11-12	*	< LOD	< LOD	2.36 (1.71-3.30)	3.54 (2.61-4.95)	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

**Concentrations of N-Acetyl-S-(1-phenyl-2-hydroxyethyl) and (2-phenyl-2-hydroxyethyl)-L-cysteine were measured together and are reported as N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary Mandelic acid (2005 – 2006)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	139 (132-147)	146 (139-152)	248 (232-261)	409 (385-442)	584 (511-661)	3347
Age group							
12-19 years	05-06	139 (126-154)	151 (136-165)	224 (210-247)	322 (291-357)	394 (349-495)	1034
20 years and older	05-06	139 (132-148)	146 (137-152)	254 (234-269)	424 (393-450)	607 (537-680)	2311
Gender							
Males	05-06	164 (154-174)	167 (155-183)	287 (259-305)	446 (409-511)	643 (534-767)	1591
Females	05-06	119 (112-127)	124 (116-132)	220 (204-234)	359 (327-389)	526 (415-614)	1754
Race/ethnicity							
Mexican Americans	05-06	141 (130-154)	156 (145-171)	246 (220-271)	374 (327-409)	459 (393-632)	821
Non-Hispanic blacks	05-06	172 (155-190)	177 (155-197)	291 (251-338)	480 (402-556)	643 (505-777)	899
Non-Hispanic whites	05-06	135 (126-144)	139 (132-148)	242 (223-263)	410 (380-445)	576 (511-661)	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 12.0.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary Mandelic acid (2011 – 2012)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	123 (113-135)	128 (118-143)	223 (200-252)	360 (327-395)	501 (434-577)	2466
Age group							
6-11 years	11-12	93.4 (86.4-101)	95.0 (86.6-110)	165 (146-188)	263 (199-304)	326 (269-406)	394
12-19 years	11-12	110 (95.6-126)	118 (102-138)	200 (170-241)	284 (248-343)	357 (286-543)	384
20 years and older	11-12	129 (116-144)	134 (119-152)	233 (207-264)	384 (351-424)	543 (449-653)	1688
Gender							
Males	11-12	143 (131-157)	148 (126-165)	241 (207-275)	384 (329-459)	577 (456-797)	1251
Females	11-12	106 (94.2-120)	114 (101-124)	207 (177-230)	348 (298-386)	434 (381-544)	1215
Race/ethnicity							
Mexican Americans	11-12	120 (106-136)	129 (117-143)	200 (171-220)	269 (244-300)	356 (277-771)	313
Non-Hispanic blacks	11-12	157 (143-173)	159 (138-183)	251 (226-295)	431 (380-476)	622 (499-721)	662
Non-Hispanic whites	11-12	119 (106-133)	123 (114-137)	220 (186-261)	365 (327-410)	488 (423-566)	810
All Hispanics	11-12	122 (104-143)	129 (114-148)	216 (173-251)	286 (251-410)	412 (302-771)	566
Asians	11-12	103 (91.3-115)	108 (95.9-123)	177 (153-215)	284 (237-335)	380 (296-505)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.0.

Urinary Mandelic acid (creatinine corrected) (2005 – 2006)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	140 (135-145)	135 (130-139)	200 (191-210)	325 (296-353)	459 (417-497)	3332
Age group							
12-19 years	05-06	107 (103-111)	105 (102-108)	143 (138-151)	202 (181-228)	257 (225-289)	1028
20 years and older	05-06	146 (140-152)	140 (135-145)	212 (200-220)	343 (318-380)	476 (431-527)	2303
Gender							
Males	05-06	134 (128-141)	127 (123-133)	199 (181-213)	316 (277-380)	467 (383-576)	1584
Females	05-06	145 (140-151)	141 (136-145)	202 (188-216)	329 (312-347)	454 (418-478)	1748
Race/ethnicity							
Mexican Americans	05-06	127 (120-135)	126 (122-132)	184 (162-205)	262 (233-314)	404 (285-493)	816
Non-Hispanic blacks	05-06	118 (110-128)	117 (108-124)	178 (167-194)	282 (234-338)	377 (309-467)	896
Non-Hispanic whites	05-06	145 (138-153)	138 (132-146)	208 (190-223)	335 (308-390)	476 (426-540)	1364

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary Mandelic acid (creatinine corrected) (2011 – 2012)

Metabolite of Styrene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	141 (131-151)	133 (123-142)	195 (182-212)	308 (281-335)	434 (373-512)	2464
Age group							
6-11 years	11-12	133 (124-144)	136 (126-147)	186 (168-207)	244 (213-260)	283 (248-329)	393
12-19 years	11-12	107 (97.3-117)	104 (94.4-114)	146 (124-166)	191 (181-197)	248 (191-275)	384
20 years and older	11-12	147 (137-159)	137 (125-151)	208 (190-229)	335 (308-367)	480 (407-531)	1687
Gender							
Males	11-12	135 (126-143)	124 (116-134)	187 (161-210)	294 (266-334)	408 (358-480)	1250
Females	11-12	147 (133-162)	140 (126-155)	206 (186-238)	325 (282-357)	449 (347-531)	1214
Race/ethnicity							
Mexican Americans	11-12	136 (119-154)	125 (113-141)	174 (158-186)	246 (220-281)	334 (244-557)	313
Non-Hispanic blacks	11-12	123 (114-132)	119 (108-131)	163 (152-179)	250 (227-287)	369 (292-419)	662
Non-Hispanic whites	11-12	145 (132-159)	136 (121-155)	208 (188-240)	329 (301-383)	480 (384-556)	808
All Hispanics	11-12	137 (124-150)	128 (120-138)	177 (160-195)	260 (222-295)	337 (276-465)	566
Asians	11-12	137 (128-148)	134 (124-147)	190 (173-200)	249 (213-318)	332 (257-465)	341

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Styrene_BiomonitoringSummary.html

Factsheet

http://www.cdc.gov/biomonitoring/Styrene_FactSheet.html

Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (2005 – 2006)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 3.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (2011 – 2012)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 3.0.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(trichlorovinyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Tetrachloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(benzyl)-L-cysteine (2005 – 2006)

Metabolite of Toluene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	6.80 (6.43-7.20)	6.81 (6.14-7.39)	12.8 (11.8-13.8)	24.0 (22.5-26.4)	39.8 (36.6-42.0)	3347
Age group							
12-19 years	05-06	7.54 (6.60-8.62)	7.70 (6.87-8.94)	13.5 (11.8-15.3)	23.9 (19.7-30.8)	38.9 (28.3-50.0)	1032
20 years and older	05-06	6.69 (6.34-7.06)	6.67 (5.95-7.30)	12.6 (11.5-13.7)	24.0 (22.6-26.3)	40.1 (35.5-43.0)	2309
Gender							
Males	05-06	7.10 (6.63-7.61)	6.93 (6.16-7.59)	12.7 (11.5-14.0)	23.8 (21.5-26.9)	38.7 (31.1-43.0)	1589
Females	05-06	6.53 (6.02-7.08)	6.66 (5.83-7.33)	12.8 (11.7-13.8)	24.3 (21.2-27.8)	41.3 (34.0-47.7)	1753
Race/ethnicity							
Mexican Americans	05-06	7.59 (6.72-8.57)	7.69 (6.61-8.53)	13.9 (12.1-15.9)	23.8 (21.0-29.3)	38.7 (29.9-50.7)	820
Non-Hispanic blacks	05-06	11.3 (10.2-12.6)	11.4 (10.2-12.8)	22.7 (19.9-24.1)	41.8 (36.7-48.1)	64.6 (50.9-76.4)	899
Non-Hispanic whites	05-06	6.15 (5.79-6.53)	6.05 (5.55-6.71)	11.4 (10.7-12.3)	20.0 (18.3-22.9)	34.0 (28.2-39.8)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.5.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html

Urinary N-Acetyl-S-(benzyl)-L-cysteine (2011 – 2012)

Metabolite of Toluene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	6.47 (6.12-6.83)	6.45 (6.01-6.88)	12.3 (10.9-13.7)	23.6 (20.4-27.2)	37.9 (32.1-45.9)	2466
Age group							
6-11 years	11-12	6.11 (5.37-6.96)	6.63 (5.60-7.34)	11.4 (9.82-14.2)	23.1 (16.9-25.3)	29.7 (24.9-48.2)	394
12-19 years	11-12	6.51 (5.53-7.65)	6.66 (5.73-7.56)	12.8 (10.1-16.9)	23.2 (17.8-33.4)	36.5 (23.9-66.0)	384
20 years and older	11-12	6.50 (6.02-7.02)	6.31 (5.84-7.01)	12.3 (10.5-14.7)	23.7 (20.1-28.4)	38.7 (31.9-53.9)	1688
Gender							
Males	11-12	6.81 (6.34-7.31)	6.83 (6.09-7.65)	12.5 (11.1-14.0)	23.6 (19.3-29.8)	39.7 (29.9-62.7)	1251
Females	11-12	6.15 (5.56-6.82)	6.15 (5.77-6.64)	12.1 (9.98-14.5)	23.2 (19.5-28.7)	35.4 (29.7-53.9)	1215
Race/ethnicity							
Mexican Americans	11-12	5.76 (4.82-6.87)	5.87 (5.02-6.50)	9.68 (7.99-12.3)	19.1 (15.9-23.6)	29.9 (19.1-42.8)	313
Non-Hispanic blacks	11-12	11.0 (10.1-11.9)	10.6 (9.57-11.9)	21.6 (17.8-24.8)	39.7 (34.2-45.5)	68.3 (52.3-95.4)	662
Non-Hispanic whites	11-12	5.90 (5.57-6.25)	5.92 (5.35-6.47)	10.9 (10.0-12.1)	19.5 (17.7-23.2)	32.1 (25.3-39.3)	810
All Hispanics	11-12	6.52 (5.53-7.70)	6.17 (5.50-7.39)	12.2 (9.53-15.4)	23.2 (18.3-31.6)	39.1 (24.7-56.9)	566
Asians	11-12	5.25 (4.39-6.28)	5.30 (4.17-6.82)	10.8 (8.50-12.9)	20.5 (16.9-26.1)	35.8 (23.1-51.5)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

Urinary N-Acetyl-S-(benzyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Toluene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	6.82 (6.56-7.08)	6.20 (5.90-6.64)	10.5 (9.92-11.2)	19.3 (17.5-21.0)	32.3 (28.9-35.9)	3331
Age group							
12-19 years	05-06	5.78 (5.43-6.16)	5.46 (5.03-5.91)	9.02 (8.25-10.0)	14.9 (12.7-17.3)	20.6 (16.6-29.9)	1027
20 years and older	05-06	7.00 (6.70-7.31)	6.39 (5.96-6.89)	10.7 (10.3-11.4)	19.7 (18.3-22.1)	33.7 (29.3-38.4)	2303
Gender							
Males	05-06	5.81 (5.50-6.15)	5.39 (5.14-5.75)	8.85 (8.29-9.65)	15.3 (13.7-16.5)	22.1 (19.4-27.6)	1583
Females	05-06	7.94 (7.52-8.38)	7.39 (6.81-7.90)	12.4 (11.4-13.8)	23.7 (21.3-26.5)	38.6 (33.6-45.9)	1747
Race/ethnicity							
Mexican Americans	05-06	6.81 (6.23-7.44)	6.48 (5.88-7.00)	10.6 (9.58-11.6)	17.0 (15.8-20.8)	28.9 (19.7-36.0)	816
Non-Hispanic blacks	05-06	7.81 (6.98-8.74)	7.81 (6.82-8.70)	13.4 (12.1-14.8)	25.3 (21.0-28.5)	36.9 (28.9-51.7)	896
Non-Hispanic whites	05-06	6.63 (6.37-6.91)	6.02 (5.67-6.57)	10.1 (9.33-10.8)	17.8 (15.8-20.1)	28.7 (23.3-36.2)	1364

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html

Urinary N-Acetyl-S-(benzyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Toluene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	7.39 (7.07-7.72)	6.68 (6.36-7.00)	12.2 (11.1-13.1)	21.0 (19.3-23.9)	36.4 (29.2-44.7)	2464
Age group							
6-11 years	11-12	8.78 (8.11-9.50)	7.88 (7.00-8.46)	12.8 (11.8-14.1)	24.5 (18.2-29.5)	33.1 (23.7-56.4)	393
12-19 years	11-12	6.34 (5.51-7.29)	5.73 (4.72-6.94)	10.0 (8.30-12.3)	17.4 (13.3-20.2)	25.7 (17.7-32.4)	384
20 years and older	11-12	7.42 (6.98-7.89)	6.70 (6.23-7.24)	12.5 (11.1-13.7)	21.9 (19.1-25.1)	39.4 (30.1-49.1)	1687
Gender							
Males	11-12	6.40 (6.04-6.78)	5.78 (5.41-6.09)	9.52 (8.74-10.5)	17.7 (15.3-21.7)	29.5 (21.3-39.6)	1250
Females	11-12	8.49 (7.86-9.17)	7.62 (7.11-8.30)	14.2 (12.7-15.5)	24.7 (22.2-27.0)	40.4 (31.4-49.1)	1214
Race/ethnicity							
Mexican Americans	11-12	6.50 (5.31-7.96)	5.99 (4.63-8.22)	10.4 (8.29-12.9)	17.9 (12.9-23.5)	24.1 (20.0-30.6)	313
Non-Hispanic blacks	11-12	8.56 (7.91-9.26)	7.73 (6.92-8.43)	14.4 (13.0-15.8)	26.0 (22.5-31.9)	46.9 (31.9-63.2)	662
Non-Hispanic whites	11-12	7.21 (6.86-7.58)	6.49 (5.91-6.98)	11.8 (10.0-13.1)	19.7 (17.3-24.5)	37.9 (25.7-50.1)	808
All Hispanics	11-12	7.30 (6.38-8.36)	6.67 (5.87-7.70)	11.4 (10.2-12.9)	21.9 (19.1-24.4)	30.4 (24.6-35.3)	566
Asians	11-12	7.02 (6.14-8.04)	6.59 (5.74-7.97)	11.9 (10.3-13.8)	24.6 (17.9-30.1)	35.5 (27.0-63.6)	341

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Toluene_BiomonitoringSummary.html

Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (2005 – 2006)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 12.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (2011 – 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 12.6.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (2005 – 2006)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 4.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (2011 – 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 4.7.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Trichloroethene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/HalogenatedSolvents_BiomonitoringSummary.html

Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2313
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	902
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2466
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	394
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1688
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1251
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1215
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	810
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 0.5.

< LOD means less than the limit of detection, which may vary for some chemicals by year and by individual sample.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (creatinine corrected) (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	*	< LOD	< LOD	< LOD	< LOD	3349
Age group							
12-19 years	05-06	*	< LOD	< LOD	< LOD	< LOD	1036
20 years and older	05-06	*	< LOD	< LOD	< LOD	< LOD	2312
Gender							
Males	05-06	*	< LOD	< LOD	< LOD	< LOD	1592
Females	05-06	*	< LOD	< LOD	< LOD	< LOD	1757
Race/ethnicity							
Mexican Americans	05-06	*	< LOD	< LOD	< LOD	< LOD	822
Non-Hispanic blacks	05-06	*	< LOD	< LOD	< LOD	< LOD	901
Non-Hispanic whites	05-06	*	< LOD	< LOD	< LOD	< LOD	1371

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated: proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary N-Acetyl-S-(dimethylphenyl)-L-cysteine (creatinine corrected) (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	*	< LOD	< LOD	< LOD	< LOD	2464
Age group							
6-11 years	11-12	*	< LOD	< LOD	< LOD	< LOD	393
12-19 years	11-12	*	< LOD	< LOD	< LOD	< LOD	384
20 years and older	11-12	*	< LOD	< LOD	< LOD	< LOD	1687
Gender							
Males	11-12	*	< LOD	< LOD	< LOD	< LOD	1250
Females	11-12	*	< LOD	< LOD	< LOD	< LOD	1214
Race/ethnicity							
Mexican Americans	11-12	*	< LOD	< LOD	< LOD	< LOD	313
Non-Hispanic blacks	11-12	*	< LOD	< LOD	< LOD	< LOD	662
Non-Hispanic whites	11-12	*	< LOD	< LOD	< LOD	< LOD	808
All Hispanics	11-12	*	< LOD	< LOD	< LOD	< LOD	566
Asians	11-12	*	< LOD	< LOD	< LOD	< LOD	341

< LOD means less than the limit of detection for the urine levels not corrected for creatinine.

* Not calculated; proportion of results below limit of detection was too high to provide a valid result.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 2-Methylhippuric acid (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	34.6 (31.8-37.7)	32.3 (28.3-36.7)	81.5 (70.1-91.0)	170 (155-181)	258 (221-284)	3346
Age group							
12-19 years	05-06	38.1 (33.7-43.1)	35.1 (30.1-41.4)	85.6 (72.5-93.0)	183 (167-206)	277 (217-312)	1031
20 years and older	05-06	34.1 (31.1-37.5)	31.8 (27.9-36.2)	81.1 (68.0-92.0)	165 (148-179)	252 (217-284)	2312
Gender							
Males	05-06	41.0 (37.5-44.8)	39.9 (35.3-44.4)	92.9 (84.6-99.8)	187 (169-207)	276 (234-306)	1588
Females	05-06	29.5 (26.6-32.6)	26.9 (23.7-30.0)	66.7 (56.1-80.9)	156 (126-172)	235 (181-275)	1755
Race/ethnicity							
Mexican Americans	05-06	32.3 (28.4-36.8)	30.2 (27.0-35.0)	67.3 (54.1-85.2)	152 (102-238)	258 (162-336)	819
Non-Hispanic blacks	05-06	36.0 (31.9-40.7)	33.3 (28.3-40.4)	82.1 (69.0-96.1)	172 (140-193)	257 (210-280)	901
Non-Hispanic whites	05-06	35.6 (32.4-39.1)	33.9 (28.7-38.2)	84.5 (73.0-92.9)	173 (158-196)	269 (226-293)	1368

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 5.0.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 2-Methylhippuric acid (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	32.8 (29.8-36.1)	30.4 (27.4-34.1)	76.1 (69.2-88.9)	161 (133-192)	221 (195-276)	2466
Age group							
6-11 years	11-12	21.9 (19.6-24.4)	19.4 (16.6-23.4)	45.4 (35.8-54.9)	97.4 (61.8-114)	122 (97.2-168)	394
12-19 years	11-12	31.0 (26.4-36.4)	27.7 (24.7-34.5)	68.3 (56.7-75.9)	146 (104-166)	173 (161-227)	384
20 years and older	11-12	34.6 (30.9-38.6)	32.8 (28.6-37.2)	83.2 (72.6-94.5)	170 (134-206)	232 (200-327)	1688
Gender							
Males	11-12	37.7 (32.3-44.0)	33.0 (28.5-38.9)	86.8 (72.9-104)	180 (147-224)	269 (195-407)	1251
Females	11-12	28.6 (25.3-32.4)	28.5 (25.4-32.5)	69.2 (58.5-82.6)	135 (113-151)	197 (159-227)	1215
Race/ethnicity							
Mexican Americans	11-12	30.5 (24.7-37.7)	29.1 (24.9-34.1)	62.3 (51.0-72.0)	129 (84.1-171)	198 (133-250)	313
Non-Hispanic blacks	11-12	35.6 (31.2-40.6)	33.0 (28.2-40.7)	78.4 (66.9-97.5)	155 (131-192)	212 (181-269)	662
Non-Hispanic whites	11-12	33.5 (30.0-37.3)	31.5 (27.5-35.9)	82.6 (70.5-94.5)	166 (134-204)	232 (188-351)	810
All Hispanics	11-12	29.2 (25.0-34.1)	26.5 (22.5-32.3)	64.9 (51.0-72.7)	131 (92.5-166)	198 (144-227)	566
Asians	11-12	26.2 (21.5-32.0)	26.3 (20.9-33.8)	56.4 (47.4-75.4)	114 (79.4-155)	165 (126-195)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 5.0.

Urinary 2-Methylhippuric acid (creatinine corrected) (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	34.7 (31.8-37.9)	32.4 (29.8-35.5)	74.9 (65.3-83.6)	145 (129-163)	204 (184-227)	3332
Age group							
12-19 years	05-06	29.2 (26.1-32.7)	27.6 (23.0-33.3)	64.7 (56.3-74.2)	140 (118-156)	185 (160-210)	1027
20 years and older	05-06	35.7 (32.4-39.3)	33.0 (30.0-36.4)	77.3 (65.3-85.3)	147 (129-168)	210 (184-230)	2305
Gender							
Males	05-06	33.6 (30.2-37.3)	32.4 (29.8-35.6)	70.2 (65.3-77.9)	133 (120-156)	193 (175-215)	1584
Females	05-06	35.9 (32.4-39.7)	32.4 (28.5-36.9)	79.0 (64.1-90.5)	152 (132-183)	220 (184-259)	1748
Race/ethnicity							
Mexican Americans	05-06	29.0 (26.2-32.0)	27.7 (24.1-29.5)	53.0 (47.0-57.8)	117 (77.6-154)	166 (123-210)	816
Non-Hispanic blacks	05-06	24.8 (22.8-27.0)	22.5 (20.6-25.8)	51.2 (44.5-59.2)	99.4 (83.1-113)	136 (119-153)	896
Non-Hispanic whites	05-06	38.4 (34.9-42.2)	36.5 (32.9-41.7)	83.0 (73.9-95.5)	157 (140-180)	217 (193-236)	1365

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 2-Methylhippuric acid (creatinine corrected) (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	37.5 (33.9-41.4)	35.2 (31.5-39.3)	77.9 (69.0-87.6)	159 (140-184)	248 (187-303)	2464
Age group							
6-11 years	11-12	31.2 (27.5-35.3)	26.9 (24.1-31.9)	48.5 (44.9-61.0)	101 (70.9-155)	173 (102-209)	393
12-19 years	11-12	30.2 (25.4-35.9)	29.6 (22.7-38.6)	54.5 (47.6-68.9)	103 (74.3-160)	175 (106-277)	384
20 years and older	11-12	39.5 (35.5-43.9)	37.4 (33.6-42.1)	87.0 (77.3-96.9)	168 (142-201)	270 (190-331)	1687
Gender							
Males	11-12	35.5 (30.8-40.8)	34.3 (28.6-39.8)	75.0 (62.5-86.4)	144 (121-171)	251 (161-336)	1250
Females	11-12	39.5 (35.2-44.2)	36.4 (31.2-41.1)	83.7 (69.0-97.2)	170 (146-198)	245 (187-301)	1214
Race/ethnicity							
Mexican Americans	11-12	34.5 (27.7-42.9)	29.3 (24.1-36.1)	62.9 (49.1-76.1)	127 (88.8-175)	188 (109-300)	313
Non-Hispanic blacks	11-12	27.7 (24.7-31.1)	26.2 (20.8-32.6)	58.9 (49.8-71.3)	104 (87.5-120)	146 (114-182)	662
Non-Hispanic whites	11-12	40.9 (36.9-45.4)	39.4 (34.3-43.6)	88.3 (76.3-99.7)	180 (146-233)	281 (201-333)	808
All Hispanics	11-12	32.7 (28.7-37.1)	27.6 (25.2-32.6)	60.8 (52.1-70.1)	127 (98.5-142)	170 (139-238)	566
Asians	11-12	35.1 (30.4-40.5)	34.3 (27.2-39.6)	71.3 (59.3-81.0)	123 (105-161)	177 (135-215)	341

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 3- & 4-Methylhippuric acid (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	256 (240-274)	248 (223-270)	573 (505-654)	1220 (1140-1320)	1840 (1740-1930)	3346
Age group							
12-19 years	05-06	288 (261-317)	272 (239-301)	516 (453-645)	1190 (997-1370)	1810 (1460-2220)	1033
20 years and older	05-06	252 (235-270)	241 (215-267)	581 (508-675)	1230 (1120-1380)	1840 (1730-1910)	2312
Gender							
Males	05-06	307 (288-328)	281 (260-324)	685 (591-765)	1380 (1280-1560)	1900 (1810-2030)	1589
Females	05-06	216 (198-234)	204 (179-233)	467 (400-554)	1070 (971-1160)	1780 (1500-1900)	1756
Race/ethnicity							
Mexican Americans	05-06	219 (198-242)	214 (195-234)	442 (355-514)	887 (612-1240)	1300 (1010-1640)	819
Non-Hispanic blacks	05-06	284 (252-322)	260 (228-307)	651 (539-782)	1220 (1080-1410)	1660 (1410-1900)	901
Non-Hispanic whites	05-06	264 (245-284)	258 (226-281)	595 (524-696)	1320 (1160-1510)	1900 (1790-2080)	1369

Limit of detection (LOD, see Data Analysis section) for Survey year 05-06 is 8.0.

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 3-and 4-Methylhippuric acid (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/L) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	221 (202-241)	212 (197-229)	563 (485-624)	1190 (1000-1410)	1710 (1520-2040)	2466
Age group							
6-11 years	11-12	152 (134-172)	136 (107-180)	311 (254-368)	616 (441-747)	889 (644-1140)	394
12-19 years	11-12	214 (185-248)	209 (176-238)	499 (374-592)	1210 (879-1570)	1680 (1510-2100)	384
20 years and older	11-12	231 (209-256)	222 (206-249)	601 (523-667)	1230 (1050-1470)	1740 (1560-2050)	1688
Gender							
Males	11-12	251 (217-290)	224 (203-264)	590 (477-708)	1340 (1050-1590)	1720 (1470-2260)	1251
Females	11-12	195 (173-220)	202 (176-215)	547 (431-602)	1020 (866-1230)	1650 (1470-1890)	1215
Race/ethnicity							
Mexican Americans	11-12	178 (141-224)	165 (118-224)	388 (288-446)	879 (569-1110)	1230 (886-2120)	313
Non-Hispanic blacks	11-12	257 (226-293)	246 (200-275)	600 (495-725)	1270 (1090-1440)	1830 (1490-2060)	662
Non-Hispanic whites	11-12	231 (209-256)	221 (205-251)	599 (499-681)	1250 (1050-1510)	1720 (1510-2190)	810
All Hispanics	11-12	176 (141-219)	161 (118-215)	400 (294-498)	886 (597-1230)	1290 (935-1920)	566
Asians	11-12	141 (109-183)	128 (96.4-185)	346 (251-486)	760 (598-1030)	1160 (892-1610)	341

Limit of detection (LOD, see Data Analysis section) for Survey year 11-12 is 8.0.

Urinary 3- & 4-Methylhippuric acid (creatinine corrected) (2005 – 2006)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	05-06	257 (240-276)	219 (204-242)	521 (468-576)	1040 (908-1140)	1440 (1260-1570)	3331
Age group							
12-19 years	05-06	220 (203-239)	195 (174-223)	405 (350-458)	859 (701-922)	1120 (958-1330)	1028
20 years and older	05-06	263 (244-284)	225 (206-248)	534 (479-607)	1070 (930-1180)	1480 (1290-1680)	2303
Gender							
Males	05-06	252 (233-272)	222 (199-254)	512 (451-565)	965 (864-1090)	1330 (1150-1520)	1583
Females	05-06	262 (240-287)	217 (203-237)	525 (437-650)	1080 (933-1250)	1500 (1240-1760)	1747
Race/ethnicity							
Mexican Americans	05-06	196 (184-210)	180 (168-189)	325 (290-353)	636 (528-749)	918 (664-1230)	816
Non-Hispanic blacks	05-06	196 (177-217)	168 (154-187)	399 (326-456)	744 (616-839)	1010 (862-1160)	896
Non-Hispanic whites	05-06	285 (264-307)	250 (221-272)	594 (515-672)	1120 (984-1240)	1520 (1310-2010)	1364

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Urinary 3-and 4-Methylhippuric acid (creatinine corrected) (2011 – 2012)

Metabolite of Xylene

Geometric mean and selected percentiles of urine concentrations (in µg/g of creatinine) for the U.S. population from the National Health and Nutrition Examination Survey.

Categories	Survey years	Geometric mean (95% conf. interval)	50th Percentile (95% conf. interval)	75th Percentile (95% conf. interval)	90th Percentile (95% conf. interval)	95th Percentile (95% conf. interval)	Sample size
Total	11-12	252 (232-275)	212 (185-241)	565 (510-617)	1050 (982-1130)	1540 (1370-1690)	2464
Age group							
6-11 years	11-12	218 (192-247)	189 (153-230)	302 (258-376)	603 (477-669)	911 (603-1200)	393
12-19 years	11-12	208 (178-244)	175 (136-227)	459 (314-585)	812 (660-982)	1130 (864-1500)	384
20 years and older	11-12	264 (242-288)	227 (195-253)	612 (545-692)	1120 (1050-1220)	1610 (1420-1940)	1687
Gender							
Males	11-12	236 (209-266)	197 (170-229)	511 (462-549)	930 (806-1030)	1420 (1110-1870)	1250
Females	11-12	269 (244-297)	226 (189-253)	631 (551-723)	1170 (1040-1360)	1660 (1470-1830)	1214
Race/ethnicity							
Mexican Americans	11-12	201 (159-253)	144 (127-179)	415 (284-515)	798 (595-1020)	1050 (792-1920)	313
Non-Hispanic blacks	11-12	201 (180-223)	182 (143-219)	442 (387-496)	763 (640-856)	1030 (841-1360)	662
Non-Hispanic whites	11-12	283 (262-306)	245 (214-287)	648 (553-723)	1210 (1050-1360)	1690 (1470-2050)	808
All Hispanics	11-12	197 (168-230)	145 (128-175)	415 (284-492)	792 (660-942)	1040 (870-1350)	566
Asians	11-12	189 (155-231)	159 (130-203)	447 (308-581)	767 (634-1070)	1110 (748-1380)	341

Biomonitoring Summary

http://www.cdc.gov/biomonitoring/Xylenes_BiomonitoringSummary.html

Appendix A. Procedure to Estimate Percentiles

Including percentiles whose estimate falls on a value that is repeated multiple times in the dataset

A common practice to calculate confidence intervals from survey data is to use large-sample normal approximations. Ninety-five percent confidence intervals on point estimates of percentiles are often computed by adding and subtracting from the point estimate a quantity equal to twice its standard error. This normal approximation method may not be adequate, however, when estimating the proportion of subjects above or below a selected value, especially when the proportion is near 0.0 or 1.0 or when the effective sample size is small. In addition, confidence intervals on proportions deviating from 0.5 are not theoretically expected to be symmetric around the point estimate. Further, adding and subtracting a multiple of the standard error to an estimate near 0.0 or 1.0 can lead to impossible confidence limits (i.e., proportion estimates below 0.0 or above 1.0). The approach used for the *Report* data tables (and for previous *Reports*) produces asymmetric confidence intervals consistent with skewed (nonnormal) biologic data distributions.

The method we use to estimate percentiles and their confidence limits for the *Report* data tables and for previous reports is adapted from a method proposed by Woodruff (1952) for percentile estimation and a method described by Korn and Graubard (1998) for estimating confidence intervals for proportions. This method essentially involves first obtaining an empirical point estimate of the desired percentile by creating a rank ordered listing of the sampled observations along with their sampling weights. From this listing and the sampling weights, it is possible to determine an empirical percentile estimate for the target population. After this point estimate of the percentile has been obtained, the fraction of results below the estimate is calculated. The fraction below the point estimate should be very close to the proportion corresponding to the desired percentile, but can deviate from this proportion depending on the frequency of non-unique sampled observations in the vicinity of the empirical percentile estimate and depending on the sampling weight associated with the sampled observation. For example, when measuring some compounds as part of NHANES there may be multiple results below a common limit of detection (LOD) or multiple results with identical measured values due to the reporting limitations of the instrument. This phenomenon coupled with the sampling weight assigned to each measured result and with the limitations of statistical software can lead to difficulties in accurately estimating some percentiles and their corresponding confidence limits because an exact percentile may fall within a large group of results with identical measured values. We circumvented this potential problem for the *Report* data tables by adding a unique, negligibly small number to each measured result. This small number was later subtracted from the percentile estimate without affecting the percentile estimate and without altering any of the original measured results.

By adding a unique, negligibly small number to each sampled observation, it was possible to associate a single sampled observation with the percentile estimate and thus to minimize the difference between the fraction below the point estimate and the proportion corresponding to the desired percentile. However, due to sample weighting, it is still possible to obtain a different point estimate (which will only differ by the difference between numerically adjacent analyte values) depending on how the data are sorted

before adding the unique number to each result. We circumvented this potential problem by replacing actual sample weights with an average sample weight where the average is computed across subjects in the same demographic domain who have identical measured results. We computed standard error estimates in a separate step using the original (unaltered) data. Clopper-Pearson 95% confidence intervals around the estimated proportion are obtained using the method described by Korn and Graubard (1998).

We describe below how SAS Proc Univariate and SUDAAN can be used to carry out this method of percentile and confidence interval estimation. SAS code for calculating these confidence intervals can be downloaded from <http://www.cdc.gov/exposurereport>. In the narrative that follows, the term 'demographic domain' refers to a demographic group of interest, for example non-Hispanic blacks. The term 'set of subsample weights' refers to the sampling weights that correspond to the variable for which percentiles will be estimated, for example the set of subsample weights associated with total blood mercury measurements. The term 'analyte' refers to the biological or chemical compound measured in a group of subjects and for which percentiles are to be estimated.

Procedure to calculate percentile estimates and their confidence intervals

Step 1: Obtain a percentile estimate using the original (unaltered data):

Create a separate file with original data (ORIG_DATA). Use SAS (SAS Institute Inc. 1999) Proc Univariate (with default percentile definition equivalent to option PCTLDEF = 5 and with the Freq option variable equal to the original subsample sampling weight) to obtain a point estimate of the percentile (PTLE_ORIG) of an analyte's original results for the demographic domain of interest, for example, the 95th percentile of total blood mercury results for adults aged 20+ years.

Step 2: Obtain a percentile estimate using the altered data:

Create a separate file for use with altered data (ALTR_DATA). Sort the data by analyte measured value separately for each particular demographic domain and set of subsample weights. Use SAS Proc Means to compute the average sampling weight (WT_{AVE}) for each unique measured result. For each unique measured result, use a counter from 1 to the total number of subjects with identical values to create a unique integer to associate with each measured observation. Each of these numbers should then be divided by 1,000,000,000 and added to the corresponding measured observation. This will result in each measured observation having an additional fractional amount beyond the fourth decimal as long as there are less than 10,000 subjects with the same measured result. Use SAS Proc Univariate (again with default percentile definition equivalent to option PCTLDEF = 5 but now with the Freq option variable equal to WT_{AVE}) to obtain a point estimate of the percentile (PTLE_ALTR) of an analyte's altered results for the demographic domain of interest.

Step 3:

Sort the data in the ORIG_DATA file by the stratum (sdmvstra) and primary sampling unit (sdmvpsu) variables. Use SUDAAN (SUDAAN Users Manual, 2001) Proc Descript with Taylor Linearization DESIGN = WR (i.e., sampling with replacement), with proper NEST statement, and with the original subsample sampling weight variable to estimate

the proportion (P_ORIG) of subjects with results below the percentile estimate (PTLE_ORIG) obtained in Step 1 and discard P_ORIG but retain the standard error (SEMEAN_ORIG) associated with PTLE_ORIG.

Step 4:

Sort the data in the ALTR_DATA file by the stratum (sdmvstra) and primary sampling unit (sdmvpsu) variables. Use SUDAAN (SUDAAN Users Manual, 2001) Proc Descript with Taylor Linearization DESIGN = WR (i.e., sampling with replacement), with proper NEST statement, and with the average sampling weight variable (WT_AVE) to estimate the proportion (P_ALTR) of subjects with results below the percentile estimate (PTLE_ALTR) obtained in Step 2 and keep P_ALTR but discard the standard error (SEMEAN_ALTR) associated with PTLE_ALTR. Compute the degrees-of-freedom adjusted effective sample size

$$(1) \quad n_{df} = ((t_{num}/t_{denom})^2)P_ALTR(1 - P_ALTR)/(SEMEAN_ORIG^2)$$

where t_{num} and t_{denom} are 0.975 critical values of the Student's t distribution with degrees of freedom equal to the actual sample size minus 1 and the number of primary sampling units (PSUs) minus the number of strata, respectively. Note: the degrees of freedom for t_{denom} can vary with the demographic domain of interest (e.g., males).

Step 5:

After obtaining an estimate of P_ALTR (i.e., the proportion obtained in Step 4), compute the Clopper-Pearson 95% confidence interval (PL(x,ndf), PU(x,ndf)) as follows:

$$(2) \quad PL(x,ndf) = v1Fv1,v2 (0.025)/(v2 + v1Fv1,v2(0.025))$$

&

$$PU(x,ndf) = v3Fv3,v4 (0.975)/(v4 + v3Fv3,v4(0.975))$$

where x is equal to P_ALTR times ndf, $v1 = 2x$, $v2 = 2(ndf - x + 1)$, $v3 = 2(x + 1)$, $v4 = 2(ndf - x)$, and $F_{d1,d2}(\beta)$ is the β quantile of an F distribution with $d1$ and $d2$ degrees of freedom. (Note: If ndf is greater than the actual sample size or if P_ALTR is equal to zero, then the actual sample size should be used in place of ndf.) This step will produce a lower and an upper limit for the estimated proportion obtained in Step 4.

Step 6:

Use SAS Proc Univariate (again with default percentile definition equivalent to option PCTLDEF = 5 and with the Freq option variable equal to WT_AVE) to determine the analyte values that correspond to the desired percentile (proportion) and to the lower and upper proportion limits obtained in Step 5. Round these results to 2 or 3 decimals depending on the significant figures associated with the original measured values.

Example:

To estimate the 95th percentile of total blood mercury in adults 20+ years of age in the 2013-2014 survey, create two separate files: name one ORIG_DATA and the other ALTR_DATA. For the ORIG_DATA file use SAS Proc Univariate with the Freq option and the subsample sampling weight (or in this case the full sample sampling weight because total blood mercury is the analyte of interest) to get a weighted point estimate of the analyte value that corresponds to the 95th percentile (PTLE_ORIG). For this example the value is 4.88 µg/L.

Sort the results in the ALTR_DATA file by analyte measured value. Use SAS Proc Means to compute the average sampling weight (WT_{AVE}) for each unique analyte measured value. For each unique measured result, use a counter from 1 to the total number of subjects with identical values to create a unique integer to associate with each measured observation. Divide each counter value by 1,000,000,000 and add this amount to the corresponding measured observation. For this altered data file (ALTR_DATA) use SAS Proc Univariate with the Freq option and WT_{AVE} to get a weighted point estimate of the analyte value that corresponds to the 95th percentile (PTLE_ALTR). For this example the value is also 4.88 µg/L.

For the ORIG_DATA file use SUDAAN to estimate the weighted proportion (P_{ORIG}) of subjects with results below the value of PTLE_ORIG (which can differ from 0.95 depending on the number of results with identical values; for this example the proportion is 0.9491) and the standard error ($SEMEAN_{ORIG}$) associated with P_{ORIG} (for this example $SEMEAN_{ORIG} = 0.0044$).

For the ALTR_DATA file use SUDAAN to estimate the weighted proportion of subjects (P_{ALTR}) with results below the value of PTLE_ALTR (which should also be very close to 0.95 regardless of the number of original results with identical values; for this example the proportion is also 0.9491). Then obtain a confidence interval on P_{ALTR} by computing the weighted Clopper-Pearson 95% confidence limits (equation 2 above) using the degrees-of-freedom adjusted effective sample size as described in equation 1 above. For this example the effective sample size is 2113.64 resulting in lower and upper confidence limits of 0.93885 and 0.95808, respectively. Then use SAS Proc Univariate (with the Freq option variable equal to WT_{AVE}) to determine the analyte values corresponding to the weighted 93.9th and 95.8th percentiles. These point estimates are the lower and upper confidence limits on the 95th percentile estimate. Round the 95th percentile estimate and its confidence limits to 2 or 3 decimals depending on the significant figures associated with the original measured values. For this example the rounded point estimate is 4.88 µg/L with lower and upper confidence limits of 4.36 and 5.21 µg/L, respectively.

Appendix C. Limit of Detection Table

The analytical limit of detection (LOD) for each of the different chemical measurements is presented in the table below. The LOD is the concentration at which the measurement has a 95% probability of being greater than zero (Taylor, 1987). As analytical methods improve, LODs will often change. For this reason, LOD results are reported by survey periods (e.g., 1999-2000, 2001-2002, etc.).

Reference: Taylor JK. Quality Assurance of Chemical Measurements. Chelsea (MI): Lewis Publishing. 1987.

Adducts of Hemoglobin

Chemical, in packed rbc's, pmol/g hemoglobin	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Acrylamide	--	--	3.0	0.11	--	--	--	--	--
Glycidamide	--	--	4.0	0.66	--	--	--	--	--

Tobacco Smoke

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Cotinine in serum, ng/mL	0.05	0.05	0.015	0.015	0.015	0.015	0.015	0.015	--
Hydroxycotinine in serum, ng/mL	--	--	--	--	--	--	--	0.015	--
NNAL in urine, pg/mL	--	--	--	--	1	0.6	0.6	--	--

Disinfection By-Products

Chemical, in blood, pg/mL	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Bromodichloromethane	--	0.233	0.62	0.62	0.62	--	--	6.0	--
Dibromochloromethane	--	0.271	0.62	0.62	0.62	--	--	5.0	--
Tribromomethane (Bromoform)	--	0.596	1.5	1.0	1.0	--	--	5.0	--
Trichloromethane (Chloroform)	--	2.37	2.11	2.1	2.1	--	--	8.0	--

Personal Care and Consumer Product Chemicals and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Benzophenone-3	--	--	0.3	0.4	0.4	0.4	0.4	0.4	--
Bisphenol A	--	--	0.4	0.4	0.4	0.4	0.4	0.2	--
Bisphenol F	--	--	--	--	--	--	--	0.2	--

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Bisphenol S	--	--	--	--	--	--	--	0.1	--
4-tert-Octylphenol	--	--	--	0.2	0.2	0.2	--	--	--
Triclocarban	--	--	--	--	--	--	--	0.1	--
Triclosan	--	--	2.3	2.3	2.3	2.3	2.3	1.7	--
Butyl paraben	--	--	--	0.2	0.2	0.2	0.2	0.1	--
Ethyl paraben	--	--	--	1.0	1.0	1.0	1.0	1.0	--
Methyl paraben	--	--	--	1.0	1.0	1.0	1.0	1.0	--
n-Propyl paraben	--	--	--	0.2	0.2	0.2	0.2	0.1	--
2,4-Dichlorophenol	--	--	0.17	0.2	0.2	0.2	0.2	0.1	--
2,5-Dichlorophenol	--	--	0.12	0.2	0.2	0.2	0.2	0.1	--

Flame Retardant Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Bis(1-chloro-2-propyl) phosphate (BCPP)	--	--	--	--	--	--	--	0.1	--
Bis(2-chloroethyl) phosphate (BCEP)	--	--	--	--	--	--	--	0.08	--
Bis(1,3-dichloro-2-propyl) phosphate (BDCPP)	--	--	--	--	--	--	--	0.11	--
Dibenzyl phosphate (DBzP)	--	--	--	--	--	--	--	0.05	--
Dibutyl phosphate (DBuP)	--	--	--	--	--	--	--	0.05	--
Di-o-cresylphosphate (DoCP)	--	--	--	--	--	--	--	0.05	--
Di-p-cresylphosphate (DpCP)	--	--	--	--	--	--	--	0.05	--
Diphenyl phosphate (DPHP)	--	--	--	--	--	--	--	0.16	--
2,3,4,5-Tetrabromobenzoic acid (TBBA)	--	--	--	--	--	--	--	0.05	--

Fungicides and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
ortho-Phenylphenol	--	--	0.1	0.1	0.1	0.2	--	--	--
Ethylene thiourea	--	--	0.1	0.24	0.21	--	--	--	--
Pentachlorophenol	--	--	0.5	--	--	--	--	--	--
Propylene thiourea	--	--	0.1	0.37	0.36	--	--	--	--

Herbicides and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Atrazine	--	--	--	--	0.5	--	--	--	--
Atrazine mercapturate	--	--	--	--	0.5	--	--	--	--
Desethyl atrazine	--	--	--	--	0.25	--	--	--	--
Desisopropyl atrazine	--	--	--	--	0.25	--	--	--	--
Desisopropyl atrazine mercapturate	--	--	--	--	0.1	--	--	--	--
Diaminochlorotriazine	--	--	--	--	0.5	--	--	--	--
2,4-Dichlorophenoxyacetic acid	0.952	0.2	0.1	--	0.4	0.15	--	--	--
2,4,5-Trichlorophenoxyacetic acid	1.2	0.1	0.1	--	0.10	0.1	--	--	--

Sulfonyl Urea Herbicides

Chemical in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Bensulfuron-methyl	--	--	0.05	0.05	0.05	--	--	--	--
Chlorsulfuron	--	--	0.06	0.06	0.06	--	--	--	--
Ethametsulfuron-methyl	--	--	0.1	0.1	0.1	--	--	--	--
Foramsulfuron	--	--	0.05	0.05	0.05	--	--	--	--
Halosulfuron	--	--	0.1	0.1	0.1	--	--	--	--
Mesosulfuron-methyl	--	--	0.06	0.06	0.06	--	--	--	--
Metsulfuron-methyl	--	--	0.05	0.05	0.05	--	--	--	--
Nicosulfuron	--	--	0.1	0.1	0.1	--	--	--	--
Oxasulfuron	--	--	0.06	0.06	0.06	--	--	--	--
Primisulfuron-methyl	--	--	0.07	0.07	0.07	--	--	--	--
Prosulfuron	--	--	0.05	0.05	0.05	--	--	--	--
Rimsulfuron	--	--	0.05	0.05	0.05	--	--	--	--
Sulfometuron-methyl	--	--	0.05	0.05	0.05	--	--	--	--
Sulfosulfuron	--	--	0.1	0.1	0.1	--	--	--	--
Thifensulfuron-methyl	--	--	0.08	0.08	0.08	--	--	--	--
Triasulfuron	--	--	0.07	0.07	0.07	--	--	--	--
Triflurosulfuron-methyl	--	--	0.05	0.05	0.05	--	--	--	--

Insect Repellent and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
N,N-Diethyl- <i>meta</i> -toluamide (DEET)	--	--	--	--	0.083	0.083	0.083	0.083	--
3-(Diethylcarbamoyl) benzoic acid (DCBA)	--	--	--	--	0.93	0.475	0.475	0.475	--
N,N-Diethyl-3-(hydroxymethyl) benzamide (DHMB)	--	--	--	--	0.089	0.089	0.089	0.089	--

Carbamate Pesticide Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Carbofuranphenol	0.4	0.4	0.4	--	--	--	--	--	--
2-isopropoxyphenol	1.1	0.4	0.4	--	--	--	--	--	--

Organochlorine Pesticides and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2,4,5-Trichlorophenol	--	--	0.1	0.1	0.1	0.1	--	--	--
2,4,6-Trichlorophenol	--	--	0.5	0.5	0.5	0.5	--	--	--

Organophosphorus Insecticides: Specific Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Acephate	--	--	0.1	0.25	0.27	--	--	--	--
Dimethoate	--	--	0.1	0.25	0.1	--	--	--	--
Methamidophos	--	--	0.1	0.37	0.41	--	--	--	--
Omethoate	--	--	0.1	0.14	0.1	--	--	--	--
Malathion dicarboxylic acid	2.64	--	--	--	0.5	0.5	--	--	--
2-Isopropyl-4-methyl-pyrimidinol	7.2	0.7	--	--	0.1	0.1	--	--	--
<i>para</i> -Nitrophenol	0.8	0.1	--	--	0.1	0.1	--	--	--
3,5,6-Trichloro-2-pyridinol	0.4	0.4	--	--	0.1	0.1	--	--	--

Organophosphorus Insecticides: Dialkyl Phosphate Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Diethylphosphate (DEP)	0.2	0.2	0.1	0.37	0.37	--	--	--	--

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Dimethylphosphate (DMP)	0.58	0.5	0.5	0.47	0.47	--	--	--	--
Diethylthiophosphate (DETP)	0.09	0.1	0.2	0.56	0.56	--	--	--	--
Dimethylthiophosphate (DMTP)	0.18	0.4	0.5	0.55	0.55	--	--	--	--
Diethyldithiophosphate (DEDTP)	0.05	0.1	0.1	0.39	0.39	--	--	--	--
Dimethyldithiophosphate (DMDTP)	0.08	0.1	0.1	0.51	0.51	--	--	--	--

Pyrethroid Insecticide Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
<i>trans</i> -3-(2,2-Dichlorovinyl)-2,2-dimethylcyclopropane carboxylic acid	0.1	0.1	--	--	0.6	0.6	--	--	--
<i>cis</i> -3-(2,2-Dibromovinyl)-2,2-dimethylcyclopropane carboxylic acid	0.1	0.1	--	--	0.5	0.5	--	--	--
4-Fluoro-3-phenoxy-benzoic acid	0.2	0.2	--	--	0.1	0.1	--	--	--
3-Phenoxybenzoic acid	0.1	0.1	--	--	0.1	0.1	--	--	--

Metals and Metalloids

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Antimony in urine, µg/L	0.04	0.04	0.07	0.032	0.032	0.032	0.041	0.022	--
Arsenic, Total in urine, µg/L	--	--	0.74	0.74	0.74	0.74	1.25	0.26	--
Arsenic (V) Acid in urine, µg As/L	--	--	1	1	1	1	0.87	0.79	--
Arsenobetaine in urine, µg As/L	--	--	0.4	0.4	0.4	0.4	1.19	1.16	--
Arsenocholine in urine, µg As/L	--	--	0.6	0.6	0.6	0.6	0.28	0.11	--
Arsenous (III) Acid in urine, µg As/L	--	--	1.2	1.2	1.2	1.2	0.48	0.12	--
Dimethylarsinic Acid in urine, µg As/L	--	--	1.7	1.7	1.7	1.7	1.8	1.91	--
Monomethylarsonic Acid in urine, µg As/L	--	--	0.9	0.9	0.9	0.9	0.89	0.2	--
Inorganic-related Arsenic Species, in urine, µg As/g	--	--	--	--	--	--	4.04	3.02	--
Trimethylarsine oxide in urine, µg As/L	--	--	1	1	1	1	0.25	--	--
Barium in urine, µg/L	0.12	0.12	0.31	0.12	0.12	0.12	0.1	0.06	--
Beryllium in urine, µg/L	0.13	0.13	0.13	0.072	0.072	0.072	--	--	--
Cadmium in blood, µg/L	0.3	0.3	0.14	0.2	0.2	0.2	0.16	0.1	0.1
Cadmium in urine, µg/L	0.06	0.06	0.06	0.042	0.042	0.042	0.056	0.036	--

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Cesium in urine, µg/L	0.14	0.14	0.2	0.066	0.066	0.066	0.12	0.086	--
Chromium in blood, µg/L	--	--	--	--	--	--	--	--	0.41
Cobalt in blood, µg/L	--	--	--	--	--	--	--	--	0.6
Cobalt in urine, µg/L	0.07	0.07	0.08	0.041	0.041	0.041	0.048	0.023	--
Copper in serum, µg/dL	--	--	--	--	--	--	2.5	2.5	--
Lead in blood, µg/dL	0.3	0.3	0.28	0.25	0.25	0.25	0.25	0.07	0.07
Lead in urine, µg/L	0.1	0.1	0.33	0.1	0.1	0.1	0.08	0.03	--
Manganese in blood, µg/L	--	--	--	--	--	--	1.06	0.99	0.99
Manganese in urine, µg/L	--	--	--	--	--	--	0.08	0.13	--
Mercury, Total in blood, µg/L	--	--	0.2	0.33	0.33	0.33	0.16	0.28	0.28
Mercury, Inorganic in blood, µg/L	--	--	0.42	0.4	0.35	0.35	0.27	0.27	--
Mercury, Ethyl in blood, µg/L	--	--	--	--	--	--	0.16	0.16	--
Mercury, Methyl in blood, µg/L	--	--	--	--	--	--	0.12	0.12	--
Mercury in urine, µg/L	--	--	0.14	0.11	0.08	0.08	0.05	0.13	--
Molybdenum in urine, µg/L	0.8	0.8	1.5	0.92	0.92	0.92	0.99	0.8	--
Platinum in urine, µg/L	0.04	0.04	0.07	0.009	0.009	0.009	--	--	--
Selenium in blood, µg/L	--	--	--	--	--	--	30	24.5	24.5
Selenium in serum, µg/L	--	--	--	--	--	--	4.5	4.5	--
Strontium in urine, µg/L	--	--	--	--	--	--	2.5	2.34	--
Thallium in urine, µg/L	0.02	0.02	0.02	0.015	0.015	0.015	0.02	0.018	--
Tin in urine, µg/L	--	--	--	--	--	--	0.22	0.09	--
Tungsten in urine, µg/L	0.04	0.04	0.04	0.021	0.021	0.021	0.026	0.018	--
Uranium in urine, µg/L	0.004	0.004	0.005	0.002	0.002	0.0017	0.0033	0.002	--
Zinc in serum, µg/dL	--	--	--	--	--	--	2.9	2.9	--

Perchlorate and Other Anions in urine

Chemical, matrix, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Nitrate, mg/L	--	0.7	--	0.7	0.7	0.7	0.7	0.7	--
Perchlorate, µg/L	--	0.05	0.05	0.05	0.05	0.05	0.05	0.05	--

Chemical, matrix, units		1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Thiocyanate, mg/L		--	0.02	--	0.02	0.02	0.02	0.02	0.02	--

Perfluoroalkyl and Polyfluoroalkyl Substances: Surfactants

Chemical, in serum, µg/L		1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Perfluorobutane sulfonic acid (PFBS)		--	--	0.4	0.1	0.1	0.1	0.1	0.1	--
Perfluorodecanoic acid (PFDA)		0.2	--	0.3	0.2	0.2	0.1	0.1	0.1	--
Perfluorododecanoic acid (PFDoA)		0.2	--	1	0.2	0.2	0.1	0.1	0.1	--
Perfluoroheptanoic acid (PFHpA)		0.4	--	0.3	0.4	0.4	0.1	0.1	0.1	--
Perfluorohexane sulfonic acid (PFHxS)		0.1	--	0.3	0.1	0.1	0.1	0.1	0.1	--
Perfluorononanoic acid (PFNA)		0.1	--	0.1	0.1	0.082	0.082	0.082	0.1	--
Perfluorooctanoic acid (PFOA)		0.1	--	0.2	0.1	0.1	0.1	0.1	--	--
n-Perfluorooctanoic acid (n-PFOA)		--	--	--	--	--	--	--	0.1	--
Branched Perfluorooctanoic acid isomers (Sb-PFOA)		--	--	--	--	--	--	--	0.1	--
Perfluorooctane sulfonic acid (PFOS)		0.2	--	0.4	0.2	0.2	0.2	0.2	--	--
n-Perfluorooctane sulfonic acid (n-PFOS)		--	--	--	--	--	--	--	0.1	--
Perfluoromethylheptane sulfonic acid isomers (Sm-PFOS)		--	--	--	--	--	--	--	0.1	--
Perfluorooctane sulfonamide (PFOSA or FOSA)		0.05	--	0.1	0.1	0.1	0.1	0.1	0.1	--
2-(N-Ethyl-perfluorooctane sulfonamido) acetic acid (EtFOSAA)		0.2	--	0.4	0.2	0.2	0.1	0.1	0.1	--
2-(N-Methyl-perfluorooctane sulfonamido) acetic acid (MeFOSAA)		0.174	--	0.523	0.174	0.174	0.087	0.087	0.1	--
Perfluoroundecanoic acid (PFUnDA)		0.2	--	0.3	0.2	0.2	0.1	0.1	0.1	--

Phthalate and Phthalate Alternatives Metabolites

Chemical, in urine, µg/L		1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Mono-benzyl phthalate (MBzP)		0.576	0.216	0.072	0.216	0.216	0.216	0.3	0.3	--
Mono-3-hydroxybutyl phthalate (MHBP)		--	--	--	--	--	--	--	0.4	--
Mono-n-butyl phthalate (MnBP)		0.9	1.1	0.4	0.6	0.6	0.4	0.4	0.4	--
Mono-isobutyl phthalate (MiBP)		--	1	0.3	0.3	0.3	0.2	0.2	0.8	--
Mono-2-methyl-2-hydroxypropyl phthalate (MHHP)		--	--	--	--	--	--	--	0.4	--
Mono-cyclohexyl phthalate (MCHP)		1.81	0.603	0.402	0.603	0.603	0.402	--	--	--

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Mono-ethyl phthalate (MEP)	0.792	0.594	0.264	0.528	0.462	0.396	0.6	1.2	--
Mono-2-ethylhexyl phthalate (MEHP)	1.2	1	0.9	1.2	1.1	0.5	0.5	0.8	--
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)	--	1	0.3	0.7	0.7	0.2	0.2	0.4	--
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)	--	1.1	0.5	0.7	0.6	0.2	0.2	0.2	--
Mono-(2-ethyl-5-carboxypentyl) phthalate (MECPP)	--	--	0.3	0.6	0.5	0.2	0.2	0.4	--
Mono-(carboxynonyl) phthalate (MCNP)	--	--	--	0.6	0.5	0.2	0.2	0.2	--
Mono-isononyl phthalate (MiNP)	1.23	1.23	1.54	1.23	1.23	0.77	0.6	0.9	--
Mono-(carboxyoctyl) phthalate (MCOP)	--	--	--	0.7	0.7	0.2	0.2	0.3	--
Mono-methyl phthalate (MMP)	--	0.2	1	1.1	1.1	0.5	0.5	--	--
Mono-(3-carboxypropyl) phthalate (MCPP)	--	0.4	0.2	0.2	0.2	0.2	0.2	0.4	--
Mono- <i>n</i> -octyl phthalate (MOP)	1.51	1.68	1.68	1.85	1.85	0.84	--	--	--
Cyclohexane-1,2-dicarboxylic-mono(hydroxy-isononyl) ester (MHNCH)	--	--	--	--	--	--	0.4	0.4	--

Phytoestrogens and Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Daidzein	0.5	1.6	0.3	0.4	0.4	0.4	--	--	--
Enterodiol	0.8	1.5	0.3	0.04	0.04	0.04	--	--	--
Enterolactone	0.6	1.9	0.3	0.1	0.1	0.1	--	--	--
Equol	3	3.3	0.3	0.06	0.06	0.6	--	--	--
Genistein	0.3	0.8	0.3	1	0.2	0.2	--	--	--
O-Desmethylangolensin	0.2	0.4	0.2	0.2	0.2	0.2	--	--	--

Polycyclic Aromatic Hydrocarbon Metabolites in urine

Chemical, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2-Hydroxyfluorene ng/L	--	--	5.0	5.0	5.0	10.0	10.0	8.0	--
3-Hydroxyfluorene ng/L	--	2.0	5.0	5.0	5.0	10.0	10.0	8.0	--
9-Hydroxyfluorene ng/L	--	--	5.0	5.0	5.0	10.0	10.0	--	--
1-Hydroxyphenanthrene ng/L	--	3.5	5.0	5.0	5.0	10.0	10.0	9.0	--
2-Hydroxyphenanthrene ng/L	--	3.2	5.0	5.0	5.0	10.0	10.0	--	--

Chemical, units	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
3-Hydroxyphenanthrene ng/L	--	3.6	5.0	5.0	5.0	10.0	10.0	--	--
2- & 3-Hydroxyphenanthrene ng/L	--	--	--	--	--	--	--	10.0	--
4-Hydroxyphenanthrene ng/L	--	--	5.0	5.0	--	--	--	--	--
1-Hydroxypyrene ng/L	--	--	5.0	5.0	5.0	10.0	10.0	70.0	--
1-Hydroxynaphthalene (1-Naphthol), µg/L	--	--	0.047	0.048	0.045	0.044	0.044	0.06	--
2-Hydroxynaphthalene (2-Naphthol), µg/L	--	0.002	0.031	0.013	0.042	0.042	0.042	0.09	--

Heterocyclic Amines

Chemical, in urine, ng/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
3-Amino-1,4-dimethyl-5H-pyrido[4,3-b]indole (Trp-P-1)	--	--	--	--	--	--	--	0.79	--
2-Amino-3-methyl-9H-pyrido[2,3-b]indole (MeA-α-C)	--	--	--	--	--	--	--	0.33	--
2-Amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (Ph1P)	--	--	--	--	--	--	--	0.34	--
2-Amino-9H-pyrido[2,3-b]indole (A-α-C)	--	--	--	--	--	--	--	0.62	--
2-Amino-3-methylimidazo[4,5-f]quinoline (IQ)	--	--	--	--	--	--	--	0.37	--
2-Amino-6-methyldipyrido[1,2-a:3',2'-d]imidazole (Glu-P1)	--	--	--	--	--	--	--	0.31	--
2-Aminodipyrido[1,2-a:3',2'-d]imidazole (GLU-P2)	--	--	--	--	--	--	--	0.83	--
Harman	--	--	--	--	--	--	--	4.59	--
1-Methyl-3-amino-5H-pyrido[4,3-b]indole (Trp-P-2)	--	--	--	--	--	--	--	0.63	--
Northarman	--	--	--	--	--	--	--	12.6	--

Volatile Organic Compounds (VOCs)

Chemical, in whole blood, ng/mL except as noted	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
1,1,1-Trichloroethane (Methyl chloroform)	--	--	0.048	0.01	0.01	0.01	0.01	0.01	--
1,1,1,2-Tetrachloroethane	--	--	--	--	0.04	0.04	0.04	0.04	--
1,1,2,2-Tetrachloroethane	--	--	0.05	0.01	0.01	0.01	0.01	--	--
1,1,2-Trichloroethane	--	--	0.01	0.01	0.01	0.01	0.01	--	--
1,2,3-Trichloropropane	--	--	--	--	0.04	--	--	0.04	--
1,1-Dichloroethane	--	--	0.01	0.01	0.01	0.01	0.01	--	--
1,1-Dichloroethene (Vinylidene chloride)	--	--	0.009	0.009	0.009	0.009	0.009	--	--

Chemical, in whole blood, ng/mL except as noted	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
1,2-Dibromo-3-chloropropane (DBCP)	--	--	0.1	0.1	0.1	0.1	--	--	--
1,2-Dibromoethane	--	--	--	--	0.015	0.015	0.015	0.015	--
1,2-Dichlorobenzene (o-Dichlorobenzene)	--	--	0.1	0.1	0.025	0.025	0.025	0.025	--
1,2-Dichloroethane (Ethylene dichloride)	--	--	0.01	0.01	0.01	0.01	0.01	0.01	--
cis-1,2-Dichloroethene	--	--	0.01	0.01	0.01	0.01	0.01	--	--
trans-1,2-Dichloroethene	--	--	0.01	0.01	0.01	0.01	0.01	--	--
1,2-Dichloropropane	--	--	0.008	0.008	0.01	0.01	0.01	--	--
1,3-Dichlorobenzene	--	--	0.05	0.05	0.025	0.025	0.025	0.025	--
1,4-Dichlorobenzene (Paradichlorobenzene)	--	0.12	0.12	0.011	0.04	0.04	0.04	0.04	--
1,4-Dioxane	--	--	--	--	--	0.5	0.5	0.5	--
2,5-Dimethylfuran	--	--	0.012	0.011	0.011	0.011	0.011	0.011	--
Benzene	--	0.024	0.024	0.024	0.024	0.024	0.024	0.024	--
Chlorobenzene	--	--	0.011	0.011	0.011	0.011	0.011	0.011	--
Chloroethane	--	--	--	--	--	--	--	0.45	--
Cyclohexane	--	--	--	--	--	--	--	0.02	--
Dibromomethane	--	--	0.03	0.03	0.03	0.03	0.03	--	--
Dichloromethane (Methylene chloride)	--	--	0.07	0.25	0.25	0.25	0.25	0.25	--
Diethyl ether	--	--	--	--	--	--	--	0.04	--
Ethyl acetate	--	--	--	--	--	--	--	0.158	--
Ethylbenzene	--	0.024	0.024	0.024	0.024	0.024	0.024	0.024	--
Furan	--	--	--	--	0.025	0.025	0.025	0.025	--
Heptane	--	--	--	--	--	--	--	0.1	--
Hexane	--	--	--	--	--	--	--	0.122	--
Hexachloroethane	--	--	0.011	0.011	0.011	0.011	0.011	--	--
Isopropylbenzene (Cumene)	--	--	--	--	0.04	0.04	0.04	0.04	--
Methylcyclopentane	--	--	--	--	--	--	--	0.02	--
Methyl-tert-butyl ether (MTBE), pg/mL	--	0.232	2.0	1.4	1.4	--	--	0.01ng/mL	--
Nitrobenzene	--	--	0.3	0.3	0.32	0.32	0.32	0.32	--

Chemical, in whole blood, ng/mL except as noted	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Nitromethane, pg/mL	--	--	--	--	0.32	--	--	--	--
Octane	--	--	--	--	--	--	--	0.1	--
Styrene	--	0.03	0.03	0.03	0.03	0.03	--	--	--
Tetrachloroethene (Perchloroethylene)	--	0.048	0.048	0.048	0.048	0.048	0.048	0.048	--
Tetrachloromethane (Carbon tetrachloride)	--	0.01	0.005	0.005	0.005	0.005	0.005	0.005	--
Tetrahydrofuran	--	--	--	--	--	--	--	0.125	--
Toluene	--	0.025	0.025	0.025	0.025	0.025	NR	0.025	--
Trichloroethene (Trichloroethylene)	--	0.012	0.012	0.012	0.012	0.012	0.012	0.012	--
ααα-Trifluorotoluene	--	--	--	--	--	--	--	0.04	--
Vinyl bromide	--	--	--	--	--	--	--	0.045	--
m-/p-Xylene	--	0.34	0.034	0.034	0.034	0.034	0.034	0.034	--
o-Xylene	--	0.049	0.049	0.024	0.024	0.024	0.024	0.024	--

Volatile Organic Compound (VOC) Metabolites

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
N-Acetyl-S-(2-carboxyethyl)-L-cysteine	--	--	--	6.96	--	--	6.96	--	--
N-Acetyl-S-(3-hydroxypropyl)-L-cysteine	--	--	--	13	--	--	13	--	--
N-Acetyl-S-(2-carbamylethyl)-L-cysteine	--	--	--	2.2	--	--	2.2	--	--
N-Acetyl-S-(2-carbamoyl-2-hydroxyethyl)-L-cysteine	--	--	--	9.4	--	--	9.4	--	--
N-Acetyl-S-(2-cyanoethyl)-L-cysteine	--	--	--	0.5	--	--	0.5	--	--
N-Acetyl-S-(2-hydroxyethyl)-L-cysteine	--	--	--	0.791	--	--	0.791	--	--
N-Acetyl-S-(phenyl)-L-cysteine	--	--	--	0.6	--	--	0.6	--	--
N-Acetyl-S-(n-propyl)-L-cysteine	--	--	--	1.2	--	--	1.2	--	--
N-Acetyl-S-(3,4-dihydroxybutyl)-L-cysteine	--	--	--	5.25	--	--	5.25	--	--
N-Acetyl-S-(1-hydroxymethyl-2-propenyl)-L-cysteine	--	--	--	0.7	--	--	0.7	--	--
N-Acetyl-S-(2-hydroxy-3-butenyl)-L-cysteine	--	--	--	0.7	--	--	0.7	--	--
N-Acetyl-S-(4-hydroxy-2-butenyl)-L-cysteine	--	--	--	0.6	--	--	0.6	--	--
2-Thioxothiazolidine-4 carboxylic acid	--	--	--	11.2	--	--	11.2	--	--
N-Acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine	--	--	--	2.0	--	--	2.0	--	--

Chemical, in urine, µg/L	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2-Aminothiazoline-4-carboxylic acid	--	--	--	15.0	--	--	15.0	--	--
N-Acetyl-S-(N-methylcarbamoyl)-L-cysteine	--	--	--	6.26	--	--	6.26	--	--
Phenylglyoxylic acid	--	--	--	12.0	--	--	12.0	--	--
N-Acetyl-S-(2-hydroxypropyl)-L-cysteine	--	--	--	5.3	--	--	5.3	--	--
N-Acetyl-S-(phenyl-2-hydroxyethyl)-L-cysteine	--	--	--	0.7	--	--	0.7	--	--
Mandelic acid	--	--	--	12.0	--	--	12.0	--	--
N-Acetyl-S-(trichlorovinyl)-L-cysteine	--	--	--	3.0	--	--	3.0	--	--
N-Acetyl-S-(benzyl)-L-cysteine	--	--	--	0.5	--	--	0.5	--	--
N-Acetyl-S-(1,2-dichlorovinyl)-L-cysteine	--	--	--	12.6	--	--	12.6	--	--
N-Acetyl-S-(2,2-dichlorovinyl)-L-cysteine	--	--	--	4.7	--	--	4.7	--	--
N-Acetyl-S-(dimethylphenyl)-L-cysteine	--	--	--	0.5	--	--	0.5	--	--
2-Methylhippuric acid	--	--	--	5.0	--	--	5.0	--	--
3- & 4-Methylhippuric acid	--	--	--	8.0	--	--	8.0	--	--

Organochlorine Pesticides and Metabolites (Pooled Samples after 2004)

Chemical, in serum, ng/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
Aldrin	--	5.94	7.8	--	--	--	--	--	--
Dieldrin	--	10.5	7.8	--	--	--	--	--	--
Endrin	--	5.09	7.8	--	--	--	--	--	--
Heptachlor epoxide	--	10.5	7.8	--	--	--	--	--	--
Oxychlorane	14.5	10.5	7.8	1.46	1.4	14.14	--	--	--
trans-Nonachlor	14.5	10.5	7.8	0.77	1.4	2.19	--	--	--
p,p'-DDT	20.7	17.4	7.8	1.46	1.4	2.19	--	--	--
p,p'-DDE	18.6	8.3	7.8	4.02	1.4	3.68	--	--	--
o,p'-DDT	--	17.4	7.8	--	--	--	--	--	--
Hexachlorobenzene	118	31.4	7.8	4.17	1.4	3.11	--	--	--
beta-Hexachlorocyclohexane	9.36	6.76	7.8	1.46	1.4	2.19	--	--	--
gamma-Hexachlorocyclohexane	14.5	10.5	7.8	1.46	1.4	2.19	--	--	--
Mirex	14.6	10.5	7.8	1.46	1.4	2.19	--	--	--

Polybrominated Diphenyl Ethers and PBB 153 (Pooled Samples after 2004)

Chemical, in serum, ng/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2,2',4'-Tribromodiphenyl ether (BDE 17)	--	--	1.0	0.6	0.6	0.59	--	--	--
2,4,4'-Tribromodiphenyl ether (BDE 28)	--	--	0.8	0.6	0.6	0.66	--	--	--
2,2',4,4'-Tetrabromodiphenyl ether (BDE 47)	--	--	4.2	1.6	0.6	0.64	--	--	--
2,3',4,4'-Tetrabromodiphenyl ether (BDE 66)	--	--	1.0	0.6	0.6	0.44	--	--	--
2,2',3,4,4'-Pentabromodiphenyl ether (BDE 85)	--	--	2.4	0.6	0.6	0.44	--	--	--
2,2',4,4',5-Pentabromodiphenyl ether (BDE 99)	--	--	5.0	1.2	0.6	0.56	--	--	--
2,2',4,4',6-Pentabromodiphenyl ether (BDE 100)	--	--	1.4	0.6	0.6	0.44	--	--	--
2,2',4,4',5,5'-Hexabromodiphenyl ether (BDE 153)	--	--	2.2	0.6	0.6	0.6	--	--	--
2,2',4,4',5,6'-Hexabromodiphenyl ether (BDE 154)	--	--	0.8	0.6	0.6	0.58	--	--	--
2,2',3,4,4',5',6-Heptabromodiphenyl ether (BDE 183)	--	--	1.7	0.6	0.6	0.49	--	--	--
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (BDE 209)	--	--	--	6	5.8	2.19	--	--	--
2,2',4,4',5,5'-Hexabromobiphenyl (PBB 153)	--	--	0.8	0.6	0.6	0.92	--	--	--

Polychlorinated Dibenzo-*p*-dioxins (Pooled Samples)

Chemical, in serum, pg/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin (HpCDD)	55.9	10.3	13.0	2.4	4.22	4.5	--	--	--
1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD)	--	9.0	11.9	0.2	0.26	0.28	--	--	--
1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD)	20.1	9.1	12.3	0.1	0.2	0.22	--	--	--
1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD)	20.3	9.3	12.3	0.1	0.13	0.14	--	--	--
1,2,3,4,6,7,8,9-Octachlorodibenzo- <i>p</i> -dioxin (OCDD)	329.0	319.0	218.0	13.0	22.6	24	--	--	--
1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin (PeCDD)	14.2	6.0	4.5	0.6	1.08	1.1	--	--	--
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD)	12.1	5.8	3.8	0.4	0.74	0.78	--	--	--

Polychlorinated Dibenzofurans (Pooled Samples after 2004)

Chemical, in serum, pg/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	13.5	7.0	8.6	1.03	1.78	1.9	--	--	--
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	--	7.0	8.6	0.19	0.33	0.35	--	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	12.7	6.5	7.4	0.3	0.51	0.55	--	--	--

Chemical, in serum, pg/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	12.6	6.1	7.9	0.1	0.18	0.19	--	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	12.7	6.0	8.3	0.2	0.35	0.37	--	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	12.9	5.8	8.2	0.11	0.2	0.21	--	--	--
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	35.6	21.0	12.0	1.37	2.37	2.6	--	--	--
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	13.2	5.8	7.1	0.47	0.81	0.85	--	--	--
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	12.7	5.5	6.8	0.51	0.88	0.92	--	--	--
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	11.9	5.2	6.0	0.26	0.45	0.48	--	--	--

Dioxin-like Polychlorinated Biphenyls: Coplanar PCBs (Pooled Samples after 2004)

Chemical, in serum, pg/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
3,4,4',5-Tetrachlorobiphenyl (PCB 81)	68.4	26.8	13.1	1.86	3.23	3.5	--	--	--
3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	23.2	10.8	13.9	1.32	2.29	2.5	--	--	--
3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	27.0	11.0	15.9	1.33	2.31	2.5	--	--	--

Dioxin-like Polychlorinated Biphenyls: mono-ortho-substituted PCBs (Pooled Samples after 2004)

Chemical, in serum, ng/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	12.4	10.5	0.4	0.31	0.3	0.37	--	--	--
2,3,3',4,4'-Pentachlorobiphenyl (PCB 114)	--	--	--	0.31	0.3	0.44	--	--	--
2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	12.5	10.5	0.6	0.72	0.3	0.44	--	--	--
2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	--	--	--	0.31	0.3	--	--	--	--
2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	12.5	10.5	0.4	0.31	0.3	0.44	--	--	--
2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	12.5	10.5	0.4	0.31	0.3	0.44	--	--	--
2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	12.4	10.5	0.4	0.31	0.3	0.44	--	--	--
2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	--	10.5	0.4	0.31	0.3	0.44	--	--	--

Polychlorinated Biphenyls: Non-Dioxin-Like (Pooled Samples after 2004)

Chemical, in serum, ng/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2,4,4'-Trichlorobiphenyl (PCB 28)	32.4	--	1.7	2.54	0.7	0.92	--	--	--
2,2',3,5'-Tetrachloro biphenyl (PCB 44)	--	--	0.4	0.36	0.3	--	--	--	--

Chemical, in serum, ng/g lipid	1999-2000	2001-2002	2003-2004	2005-2006	2007-2008	2009-2010	2011-2012	2013-2014	2015-2016
2,2',4,5'-Tetrachloro biphenyl (PCB 49)	--	--	0.4	0.31	0.3	--	--	--	--
2,2',5,5'-Tetrachlorobiphenyl (PCB 52)	12.5	12.4	0.8	0.33	0.3	--	--	--	--
2,3',4,4'-Tetrachlorobiphenyl (PCB 66)	12.4	12.4	0.8	0.4	0.3	0.69	--	--	--
2,4,4',5'-Tetrachlorobiphenyl (PCB 74)	12.4	10.5	0.8	0.31	0.8	0.78	--	--	--
2,2',3,4,5'-Pentachlorobiphenyl (PCB 87)	--	10.5	0.4	0.31	0.3	--	--	--	--
2,2',4,4',5'-Pentachlorobiphenyl (PCB 99)	12.5	10.5	0.6	0.31	0.3	0.44	--	--	--
2,2',4,5',5'-Pentachlorobiphenyl (PCB 101)	25.7	10.5	0.6	0.59	0.3	--	--	--	--
2,3',3',4',6'-Pentachlorobiphenyl (PCB 110)	--	10.5	0.8	0.31	0.3	--	--	--	--
2,2',3,3',4,4'-Hexachlorobiphenyl (PCB 128)	12.4	10.5	0.4	0.31	0.3	--	--	--	--
2,2',3,4,4',5' & 2,3,3',4,4',6'-Hexachlorobiphenyl (PCB 138 & 158)	41.1	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,4',5,5'-Hexachlorobiphenyl (PCB 146)	12.4	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,4',5',6'-Hexachlorobiphenyl (PCB 149)	10.5	--	0.4	0.31	0.3	--	--	--	--
2,2',3,5,5',6'-Hexachlorobiphenyl (PCB 151)	--	10.5	0.4	0.31	0.3	--	--	--	--
2,2',4,4',5,5'-Hexachlorobiphenyl (PCB 153)	55.6	10.5	1.1	0.31	0.3	0.59	--	--	--
2,2',3,3',4',4',5'-Heptachlorobiphenyl (PCB 170)	17.2	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,3',4,5,5'-Heptachlorobiphenyl (PCB 172)	12.5	10.5	0.4	0.31	0.3	--	--	--	--
2,2',3,3',4,5',6'-Heptachlorobiphenyl (PCB 177)	12.5	10.5	0.4	0.31	0.3	--	--	--	--
2,2',3,3',5,5',6'-Heptachlorobiphenyl (PCB 178)	12.4	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	28.2	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,4,4',5',6'-Heptachlorobiphenyl (PCB 183)	12.4	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,4',5,5',6'-Heptachlorobiphenyl (PCB 187)	12.4	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,3',4',4',5,5'-Octachlorobiphenyl (PCB 194)	--	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,3',4,4',5,6-Octachlorobiphenyl (PCB 195)	--	28.1	0.7	0.31	0.3	--	--	--	--
2,2',3,3',4,4',5,6' & 2,2',3,4,4',5,5',6-Octachlorobiphenyl (PCB 196 & 203)	--	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,3',4,5,5',6-Octachlorobiphenyl (PCB 199)	--	10.5	0.4	0.31	0.3	0.44	--	--	--
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl (PCB 206)	--	28.1	0.7	0.31	0.3	0.44	--	--	--
2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl (PCB 209)	--	--	0.7	0.31	0.3	0.44	--	--	--

Appendix D. References for Biomonitoring Analytical Methods

Adducts of Hemoglobin

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Centers for Disease Control and Prevention
National Center for Environmental Health
Division of Laboratory Sciences
Mail Stop F-20
4770 Buford Highway, NE
Atlanta, GA 30341-3724

Telephone: (toll free) 1-800-CDC-INFO (1-800-232-4636)
Email: CDCINFO@cdc.gov
Website: <http://www.cdc.gov/exposurereport>